

**HIGHER EDUCATION, THE STATE AND
THE ECONOMY: A COMPARATIVE STUDY
OF ENGLAND AND SOUTH KOREA**

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CHAPTER ONE

INTRODUCTION

The thesis analyses England and South Korea, two countries with which I am familiar. My personal experiences as a student at both a Korean university in the middle of the 1980s and an English university in the early 1990s allowed me to watch important developments in national higher education systems in these countries closely.

The 1980s was a critical period in the quantitative and qualitative development of Korean higher education. At the beginning of that decade, in spite of successful economic achievement during the previous two decades in Korea, the development of a democratic political system was delayed by the emergence of the second military government in 1980.¹ That placed universities at the centre of political conflicts, as students' activism played an important role in anti-government protests. To control students' political activities, the government shifted attention from control of the number of students, departments and institutions to academic regulations and the degree system by introducing a competitive credit system from 1981.² The new policy led to an expansion of the higher education sector, which had been held back by the government in previous decades.³ Along with this expansion, vocational higher education in two-year technical colleges also grew rapidly, offering specialised vocational courses for a wider group of students (mainly less-academic students). Regardless of the political and educational success of the policy, economically it was a timely move as Korea began to invest in skill-intensive and technologically more sophisticated industries.⁴ Gradually, the expansion of higher education increased the supply of graduates in the labour market.

English higher education also experienced substantial changes in the funding and management systems during the late 1980s and the early 1990s. Firstly, the government tightened public funding for higher education.⁵ The 1992 Act created a new funding system, the Higher Education Funding Council for England (HEFCE), and developed performance indicators for an efficient and transparent allocation of funds. Secondly, higher education institutions were encouraged to meet the various learning needs of students from different social backgrounds.⁶ Thirdly, the new ideas of market principles emphasised economic values - such as efficient management, quality control, and the assessment of teaching and research activities - which were new in English higher education.⁷ The introduction of market ideas in English higher education challenged the traditional view of higher education and brought important changes. During my time as an MA student in an English university, I could witness the changes in the departmental structure, the development of various choices in educational programmes and the increasing number of overseas students.

Since then, my interest in the relationships between the university and the economy has grown into the main topic of my comparative study; partly because I believe that university education should mean more than merely meeting economic demands by commercialising new knowledge, creating new professional education programmes, or producing highly skilled workforces.

During the last decade, the economic influence on higher education has taken specific shapes in higher education policies in both England and South Korea. For example, Tony Blair and his Labour Party emphasised that “education is the key to economic success, social cohesion and active citizenship; our future national prosperity depends on the skills and abilities of our people.”⁸ The 1995 Education Reform in South Korea was also intended to encourage competition among universities in order to encourage the specialisation of education programmes and the diversification of research projects in higher education.⁹

In England and South Korea, it is noticeable that the role of governments in shaping and using higher education institutions has become important. For example, both governments are employing neo-liberal ideas and market principles in formulating new higher education policies. This is partly because the governments in both countries believe that market-like competition among universities will improve the quality of higher education and the university's economic contribution to national development. In the case of South Korea, it was also believed that making use of the experience of Western countries, for example implementation of neo-liberal ideas in universities, will improve the quality of teaching and research to match international standards. It is also clear that both governments recognise the vital role of higher education as a main producer of knowledge which would be useful for the creation of national wealth.¹⁰ The governments therefore developed policies which directed higher education institutions to respond effectively to changing economic needs. In this process, the role of the government in university-industry relations grew.

This growing role of the government in higher education is creating a particular form of relationship between the university, the state and the economy, which is very different from the traditional relationships.

Building a relationship between the university and the economy both in England and South Korea was still relatively a new concept by 1970. It was only after the end of the Second World War that higher education in these two countries began to be considered in terms of national economic development. Since the governments' attention to economic roles of higher education has grown steadily.

In England, the relation between universities and the economy was developed along with the expansion of higher education institutions and the government's policy of support for science and research. Firstly, a great expansion of English higher education took place in the 1960s. Seven new universities were created on greenfield sites in the early 1960s.¹¹ New

polytechnics were also created to serve local communities.¹² As Scott says, the polytechnics increased the variety of English higher education, as they employed new practices (modular courses, sandwich courses) in higher learning.¹³ The growing political support for science and technical education also favoured the expansion of technical colleges. Secondly, the government supported research and development (R&D) through research councils. The increasing public investment had already brought substantial growth in R&D by 1964.¹⁴ However, the economic depression induced by the oil crisis in the 1970s led the English government to tighten public funding of higher education in the 1980s. This led English universities to seek private funding sources.¹⁵ The difficulties involved in securing external funding encouraged universities to develop systematic and long-term university-industry relations, such as Science Parks and R&D centres, from the 1980s. The development of the Cambridge Science Park in the early 1980s became a successful model for other English universities.¹⁶

In South Korea, after the initial success of economic development in the 1960s, the government launched the development of industry-university co-operation in the 1970s.¹⁷ The earlier forms of industry-university cooperation focused on the development of educational programmes that gave students opportunities to acquire practical knowledge and skills. The creation of the Korean Advanced Institute of Science and Technology (KAIST) in 1971 and the expansion of science and engineering departments in universities and two-year technical colleges in the 1980s encouraged the development of industry-university relations, such as joint research projects, technology transfer from university to industry, exchanges of experts in particular fields, and the shared use of research equipment.¹⁸

Today, in both countries the size and forms of the relationship between the university and the economy are larger and more varied than in earlier decades. The role of science and technology in economic development has been critical in the rise of knowledge-based

industries. The influences of the international market on national economies have grown in terms of trade, capital, labour, management and technology.¹⁹ In addition, the development of IT and communication technology increased the speed of international communication between researchers, academics, universities and business. All these increasing economic pressures on higher education create the need to redefine the role of higher education and reposition higher education institutions.

So, in view of these contexts, the purpose of the thesis is to analyse the changing patterns of the relationship between higher education, the state and the economy in England and Korea (South Korea) since the end of the nineteenth century.²⁰

The argument of the thesis is that in England and South Korea higher education and its relationships with the state and the economy have changed under the impact of fresh political interpretations of the significance of economic changes over the last hundred years. These changes occur in particular time periods (1880-1900, 1960-1990 and the 1990s), and have affected the valuations of ‘good knowledge’ and influenced research activities in higher education.

GENERAL APPROACHES

A Historical Perspective

The literature on historical approaches to the analysis of education emphasises at least two main characteristics, which are required for a study to be thought of as truly ‘historical’. These are:

- The aim of the study is to analyse knowledge about the past;
- The study should be based on thorough research on all relevant first-hand data and sources.

For example, Marwick stresses that historical essays should be “non-metaphysical and source-based” and concerned with “addressing clearly defined problems relating to what happened in the past ... by meticulously examining all the sources relevant to them”.²¹ However, it must be remembered that, as Carr points out, the writing of history “consciously or unconsciously, reflects our own position in time, and forms part of our answer to the broader question what view we take of the society in which we live”.²² For example, those nineteenth century historians who were influenced by the positivist views characteristics of the nineteenth century generally agreed that, “the task of the historian was simply to show how it really was”.²³

These considerations show that historical research, which involves a careful investigation of all relevant data and an objective attitude in interpreting them, is not an easy task. Recently, Aldrich has stressed that “history should be studied for its own sake” and should reflect the past as accurately as possible.²⁴ He defines history as:²⁵

a verbal artefact, a narrative prose discourse of which, après White, the content is as much invented as found, and which is constructed by present-minded, ideologically positioned workers (historian and those acting as if they were historians) operating at various levels of reflexivity... a rhetorical, metaphorical, textual practice governed by distinctive but never homogenous procedures...

Aldrich, who worked on both history and education, also comments that “just as history and education are highly complex entities in themselves, so, too, is the relationship between them.”²⁶ Despite the different judgements which have been made about the study of history, education and their relationship, he says, “one of the most highly visible and important connections between history and education is the history of education”.²⁷ Aldrich argues that “the role of the historian of education is to demonstrate continuities and changes, and to distinguish that which is important and long lasting from that which is shallow and transitory.”²⁸

The historical narratives in this thesis consider to some degree the higher education traditions of the past in England and Korea. However, this is not the main purpose of the study. Nor does it offer an evaluation of changes in these, or seeks answers for the present and the future. The thesis is not primarily concerned with the social functions of the higher education systems in England and Korea, although the study of these functions is suggested one of the main roles of historical research by McCulloch.²⁹

As for its methodology, the thesis is basically a documentary analysis based on secondary sources, such as publicly available books, journals, parliamentary reports, and institutions' own publications like prospectuses and web-sites. As the research is a comparative study, the research has attempted to gather compatible sources. However, there was a disparity in the quantity and the quality of existing research on higher education between the two countries. The research data was accordingly selected in order to offer a relevant comparative analysis while still reflecting accurately the significance of local context. In addition, in Chapters Seven and Eight, the thesis examines the development plans of some higher education institutions. Here, it aims to introduce the institutions own words to illustrate how the growing political and economic pressure is re-shaping higher education institutions today.

The Korean literature

The Korean literature on higher education has been strong in the provision of an “official narrative” which describes the intentions of the government and “learning from others”, but weak on the creation of new theoretical perspectives.

For example, many early publications discussed the new higher education system and stressed its achievements. Yoon (1979) described the improved access to the higher education system and its improved quality.³⁰ Lee (1982) examined the changes in the purpose

and roles of Korean higher education, as the size of higher education began to expand from 1981.³¹ Kang (1990) illustrated the growth of higher education and pointed out its problems.³²

After the new higher education reform policies were introduced in 1995, increased academic attention was paid to the quality of higher education and research activities in universities. For example, Shin (2000, 1998) examined the reform policies of the 1990s, and their influences on the higher education sector.³³ Recently, he (2005) also analysed key issues in higher education policies such as research activities, the system of linking assessment and funding, and the internationalisation of institutions.³⁴ Lee (2006) examined higher education policies, focusing on their historical development and proposing a new paradigm for their future direction in the twenty-first century.³⁵ After the Asian economic crisis, the political and economic interest in research activities supported the development of post-graduate education and the improvement of the quality of research activities in universities.

The Korean Education Development Institute (KEDI) has been the leading centre of higher education study, mainly providing case studies of other countries as guidance for policy makers. For example, there are *A Comparative Analysis of Post-graduate Schools* (1998) and *Changes and the Prospect for Higher Education in the Twenty-first Century* (1998).³⁶ Today, universities have begun to establish research centres for the study of higher education. However, there is still a need to make an effort to establish such study as an independent area and to expand the depth and scope of research topics.

Overall, the Korean literature on higher education has been mainly devoted to political analysis and also to the introduction of other countries' cases (mainly those of European countries and the United States) as development models for Korean universities.

A Comparative Perspective

In the development of a comparative analysis, it is common to employ a methodology within the tradition of comparative education.

The early publications focus on the discovery of causes and factors in order to understand why things were as they were. For example, Kandel emphasised that in the study of comparative education descriptions of education alone without a sound understanding of national background are inappropriate, as education systems reflect the aims, aspirations, traditions, and characteristics of the nation which they serve.³⁷ He considered all the various factors which make up an educational system, including the different meanings of nationalism and individual freedom, types of schools and curriculum, and ways of administration.³⁸ Regarding these aspects of education system, Kandel stated that, “the chief value of a comparative approach to such problems lies in an analysis of causes which have produced them, in a comparison of the differences between the various systems and the reasons underlying them, and, finally in a study of solutions attempted”.³⁹

Kandel stressed that “the factors and forces outside school matter even more than what goes on inside” and hence the understanding of the real meaning of the educational system of a nation should be based on knowledge “of its history and traditions, of the forces and attitudes governing its social organisation, of the political and economic conditions that determine its development”. Therefore for Kandel, clarifying the meaning of the nationalism which provides the basis of each country’s educational system is important in a comparative study. He also believed that “since educational systems are living things, compounded of traditions, culture and ideals, their study provide a safeguard against overemphasis of [sic] the immediately practical, and of [sic] nationalistic control on the one hand and of [sic] the freedom of individualism on the other”.⁴⁰

Hans agreed with Kandel's emphasis on nationalism as a primary cause and classified five factors which form an ideal nation: unity of race, unity of religion, unity of language, compact territory and political sovereignty, in order to understand national systems of education.⁴¹ He says that national character is "a complex result of racial intermixtures, linguistic adaptations, religious movements and historical and geographical situations in general"; in the cause of history, "hybridisation of races and the rise of universal religious movements played havoc with original tribes and created the modern nations which could not follow the simple pattern of tribal education".⁴²

Since they share such a background, many nations share common problems in their national systems of education, as their national past was often formed by similar factors. Therefore Hans argues that, "the analytical study of these factors from a historical perspective and the comparison of attempted solutions of resultant problems are the main purpose of Comparative Education".⁴³ Hans categorised these factors in three definite groups: (1) natural factors: race, language, environment; (2) religious factors: Catholicism, Anglicanism, Puritanism; and (3) secular factors: humanism, socialism, nationalism.⁴⁴

In fact, Kandel, Hans and Schneider all identified the causes of distinctive education systems in a similar way and sought similar explanations for the trends of educational development, despite their different philosophical positions.⁴⁵ Indeed Hans stressed that the second purpose of comparative education should be "to discover the underlying principles which govern the development of all national systems of education".⁴⁶

The Kandel-Hans historical approach was influential, as studies of educational events in their political and social contexts, concerning the causes and effects of these for education, contributed to the development of comparative education as a field of study. In the 1960s, however, studies of comparative education concerned scientific methods of enquiry along with the development of scientific research in social science. For example, new

methodologies such as Holmes' problem solving, Bereday's total analysis and Noah and Eckstein's quantification of data were developed. These efforts helped to refine methodological problems of international comparison. Especially, the creation of the International Bureau of Education (founded in 1925) and UNESCO (founded in 1945) contributed to the collection of national data for comparative analysis.

Holmes' problem solving approach was developed based on Dewey's notion of reflective thinking, a way of problem solving which involves a hypothesis (or solution formulation), the intellectualisation of a problem (or analysis), the analysis and specification of the context, the logical deduction of consequences, and practical verification.⁴⁷ Holmes' method in comparative education involves phases of reflective thinking: i) problem analysis, ii) policy formulation, iii) the identification, description, and weighting of relevant factors within a given context, and iv) the anticipation or prediction of the outcomes of policies.⁴⁸ He stressed that "one task which comparative education should, therefore, undertake is, having once identified the universal, vaguely perceived problem, to intellectualise (or analyse) it in general terms, and then to reveal its specific features in selected contexts."⁴⁹

Holmes understood most modern problems as derived from the past, and assumed that the same problems exist everywhere. Especially, he described the Second World War's impact on almost all societies as leading to explosions: an explosion of expectation, an explosion of population and an explosion of knowledge.⁵⁰ Firstly, after the War, there was an increasing expectation of access to education as a basic human right. Secondly, the improved medical services contributed to the fall in infant mortality and hence to the rapid growth in the numbers of school-age children. Thirdly, the advancement in applying science, in particular communication of knowledge influenced the political, economic and cultural lives of the people.⁵¹ Therefore, different education provisions which could embrace the newly created demands were needed. However, Holmes stresses that despite the common problems,

the same policies would not be equally effective everywhere, so that the tasks of comparative analysis were to present the available policy choices and the most realistic solutions.⁵²

Overall, Holmes' approach to problems, based on the hypothetico-deductive method of enquiry, aims to contribute to the planned reform of education. The goal of "comparative education should be to anticipate in a given context the outcomes of institutional innovation".⁵³

Bereday was interested in the formulation of a "law" or "typology", and he introduced a method of "total analysis". He stressed the importance of an area study (a study of one country) as a preliminary step to a comparative study, which should be based on the hard work of collecting and selecting data, and the firsthand recording of visual impressions, requiring an intuitive feeling for the nature of the different cultures.⁵⁴ He emphasised that a knowledge of the language of the area, residence abroad and observation without cultural and personal biases are essential in order to reach good generalisations about the educational systems of the area under study.⁵⁵

Following these activities, the first task of a comparative study is the description of educational systems and practices.⁵⁶ Bereday paid attention to the systematic collection of data, organising the collected data and presenting them in a constructed manner, such as tables using preconceived analytical categories.⁵⁷ The comparative approach then begins with juxtaposition. The reviewing of the data related to the theme and the proposition of a hypothesis leads to a comparative analysis.⁵⁸ As a total comparative study is a life-long task, Bereday suggests a "problem approach" as an apprenticeship for the total analysis, which involves "a selection of one theme, one topic, and the examination of its persistence and variability throughout the representative educational systems".⁵⁹ Finally, and only after the accumulation of much research, Bereday insists that a total analysis can be attempted, which reflects the view that "concern with the over-all impact of education upon society in a world

perspective is the culminating point of discipline” and which deals with “the immanent general forces upon which all systems are built”.⁶⁰

Noah and Eckstein define the study of comparative education as “an intersection of the social sciences, education and cross-national study”⁶¹ and use the strategies and tactics of empirical social science research. Their empirical approach, which measures functionally related variables and relies on quantification, is the least helpful for my literature-based analysis.

In general, the concern for the study of methodology in comparative education has continued. For example, Parkyn has pointed to the rise of many detailed single-country studies and has encouraged more theoretical research which can also strengthen the practical application of findings.⁶² Cowen also says that “a very modern comparative education which specifies the grammars of relation between societies and their educational systems... should draw major theoretical effort”.⁶³

From the 1990s, globalisation has increased attention to comparative and international education from a wider range of educationists.⁶⁴ Cowen describes the extended use of comparative study as a new orthodoxy that ‘everybody can do and should do comparative education’, and he notes the political positioning of comparative education from the very beginning.⁶⁵ He points out that “for many, the academic purpose of comparative education continues to be to influence educational policy”, and turns our academic attention from the study of policy action oriented to the issue of the ‘transfer’ of educational policy and its ‘context’, suggesting a new approach to the purpose of comparative education.⁶⁶

This review of the comparative perspective indicates that the historical and qualitative interpretations of Kandel and Hans are informative and useful for the understanding of different education systems in relation to political and cultural traditions. However, these methods are not appropriate themselves to my study, which analyses the changing

relationships between higher education, the state and the economy beyond the national boundary. Holmes' approach is helpful in identifying the common problems which have affected the development of certain higher education policies, but my study is not a policy-oriented investigation designed to formulate reform policies for higher education. Bereday's total analysis, which concerns the overall impact of education upon society in a world perspective, is one of the most scientific and useful methods, but a life-long task as well, thus impractical to apply to my study. The current attention to transfer and context is interesting, but does not fit in to the theme of my study.

For that reason, although my thesis is a comparative analysis, I also turned to the literature on higher education studies.

A Higher Education Perspective

The literature in the field of higher education study has applied different approaches, such as historical, comparative or policy analysis.

Some early studies offered historical narratives, describing the different academic development of higher education systems in various countries. For example, Becher (1987, 1989 and 1993) described the higher education system in UK, including academic disciplines, the management of different sectors of higher education institution, academic structures and the curriculum.⁶⁷ Many studies cover more than one country, and highlight the different historical and cultural backgrounds of the current systems. For example, Rothblatt and Wittrock (1993) illustrated the development of the modern university in Europe and America.⁶⁸ Clark (1983) examined academic organisation in terms of knowledge, work, beliefs and integration, in different national settings.⁶⁹ He analysed how competing mechanisms worked in different ways to control higher education in these countries.

During the last two decades, the focus of studies has shifted to higher education reforms and new policies, including those requiring new management skills. For example, Kogan and Hanney (2000) examined the policy changes during the Conservative governments (1979-1996) and their impact on academic values in English universities. They examined how state actions affected the values and purposes of universities, and how the government interacted with changing social and economic changes to influence higher education policies.⁷⁰ Williams (2003),⁷¹ Slaughter and Leslie (1997)⁷² and Clark (2004, 1998)⁷³ examined changes in higher education relating to the rise of entrepreneurialism. Goedegeburre (1994),⁷⁴ Neave (2000, 1994),⁷⁵ and Altbach (1998),⁷⁶ employed a comparative approach to the analysis of the transformation of higher education institutions throughout the 1990s. Overall studies of higher education demonstrated the different ideas about higher education, academic systems, and forms of teaching and research activities in one country or more.

Not least because of these studies, my thesis focuses on investigating newly emerging shapes of higher education. By identifying new ideas about higher education and the pressures for changes in English and Korean institutions, the thesis attempts to interpret the new forms of relations between higher education, the state and the economy.

In view of the great difference between England and Korea in the volume and range of studies of higher education, and their different orientation to such studies, having independent chapters instead of combining the two countries under thematic or chronological headings seemed the best way of presenting a compatible analysis while stressing the peculiar features of higher education in each country at different times.

Therefore, this thesis is organised into nine chapters.

Chapter Two describes the main concepts and the theoretical frame of the thesis. The chapter examines existing theories, and presents different models - the relationships between

higher education, the state and the economy - as interpretive principles for the comparative analysis.

Chapters Three and Four examine the higher education traditions in each country, and how they were challenged at the end of the nineteenth century. Chapter Three investigates the increased attention to science education and the creation of new universities in industrial cities. Chapter Four analyses the higher education tradition in Korea and the collapse of the tradition at the turn of the twentieth century.

Chapters Five and Six analyse the changes in higher education institutions in England and South Korea during the 1960s and the 1970s. During this period, new scientific knowledge and advanced technology played key roles in national economic development, and the rise of specific liaisons between university and industry will be examined.

Chapters Seven and Eight describe the changing relationships between higher education, the state and the economy during the last twenty years. Both in England and South Korea, market ideas are employed in higher education. Chapter Seven examines how the English higher education system has been led to serve the national economic needs. Chapter Eight analyses the higher education reform of 1995 and its impact on the development of research-oriented universities.

Chapter Nine summarises the analysis of the changing patterns of the relationships between higher education, the state and the economy in England and South Korea, and revisits the theoretical themes of the thesis. This chapter discusses the common forces which are transforming higher education institutions in both countries and analyses them in terms of changing valuations of knowledge.

In the next chapter, this thesis will discuss the perspectives, theories, main concepts and models of the study.

ENDNOTES FOR CHAPTER ONE

¹ In December 1979, the military coup brought political upheavals. Students' anti-government demonstrations became fierce in the spring of 1980. On 17th May, the government employed military power in Kwangju (one of the major cities in the Southwest province) and proclaimed an emergency and martial law to control the growing political opposition. Ahn, Kisung *et al.*, (1998), *한국교육개혁의 정치학*, [The Politics of Educational Reform in Korea], Hakjisa: Seoul, pp. 85-86.

² In the 1960s and the 1970s, the political control focused on the size of institutions, intervening in the selection of students to discourage political activities. For example, the annual growth rate of the number of students in higher education during the 1960s and the 1970s was 7.9 per cent, which was much lower than in the 1950s (29.9 per cent) and later in the 1980s (9.5 per cent). However, in the 1980s the neo-military government loosened the control of selection but tightened evaluation and degree awarding systems. KEDI, (1998), *한국 근대 학교교육 100 년사 연구: 해방이후의 학교교육*, [A Study of the History of Modern Education after Liberation from Japanese Rule], KEDI: Seoul, pp. 36-37 and 42-44.

³ It was a political decision without careful investigation of the educational effects which affected the quality of higher education. Ahn, Kisung *et al.*, (1998), *op. cit.*, pp. 92-93.

⁴ Amsden, A.H. (1989), *Asia's Next Giant: South Korea and Late Industrialisation*, Oxford University Press: New York and Oxford, p. 244.

⁵ The English government believed that the introduction of competition based on market principles would reduce the burden of public funding for higher education. It was expected to encourage competition among institutions and among different groups within institutions. Kogan, M. and Hanney, S. (1988), *Reforming Higher Education*, Jessica Kingsley Publishers: London and Philadelphia, pp. 62-63.

⁶ Green A. *et al.*, (1999), *Convergence and Divergence in European Education and Training Systems*, Institute of Education University of London: London, p. 210.

⁷ Green A. *et al.*, (1999), *ibid.*, pp. 218-220.

⁸ The 1997 Manifesto of the Labour Party.

⁹ The Presidential Commission on Education Reform, (1998), *The White Report on Korean Education Reform 1994-1998*, pp. 65-77. See also, Kim, Sungjae, (1999), *국민의 정부: 교육개혁의 평가와 과제*, [Kookmin's Government: The Evaluation and the Task of Education Reform of the First Year], *평화 논총*, [Peace Forum], Vol.3, No.1, pp. 167-172.

¹⁰ During the recent decades, reports and inquiries presented in England, USA, Canada, Australia, New Zealand and South Africa have made similar findings, that universities are essential for national prosperity and for democracy. Gray, H. (1999), Re-scoping the University, in Gray, H. (ed.), *Universities and the Creation of Wealth*, The SRHE & Open University Press: Buckingham, p. 20.

¹¹ The Universities of East Anglia, Essex, Kent, Lancaster, Sussex Warwick and York were created in the early 1960s. They were conceived in the years 1958-1961 before the Robbins

Report was presented. Rich, T. (2001), The 1960s New Universities, in Warner, D. and Palfreyman, D. (eds.), *The State of UK Higher Education*, The SRHE & Open University Press: Buckingham, p. 49.

¹² Scott, P. (1995), *The Meaning of Mass Higher Education*, The SRHE & Open University Press: Buckingham, p. 57.

¹³ Scott, P. (1995), op. cit., pp. 60-61.

¹⁴ Clark, B.R. (ed.), (1993), *The Research Foundations of Graduate Education: Germany, Britain, France, United States, Japan*, University of California Press: Berkeley, Los Angeles, Oxford, pp. 74-75.

¹⁵ English universities found it hard to make progress in securing private funding sources. For example, research funding from UK industries to universities as a proportion of total research revenues only grew from 5.6 per cent in 1985 to 6 per cent in 1995 and then to 7.1 per cent in 1999. Hatakenaka, S. (2004), *University-Industry Partnership in MIT, Cambridge and Tokyo - Storytelling across Boundaries*, Routledge Falmer: New York & London, p. 29.

¹⁶ According to Hatakenaka, the industrial development around Cambridge based on high technology and informal networks was as important as Silicon Valley and Route 128 were in the United States. Hatakenaka, S. (2004), *ibid.*

¹⁷ National regulations to support industry-university relationships were first introduced in the 1960s in South Korea. In 1974, the Committee for Industry-University Cooperation was established, and supported research funding, scholarships and academic conferences. Lee, Mookeun, *et al.*, (1990), *산학 협동교육의 활성화: 문제와 대책*, [Activation of Industry-University Cooperation Education: Problems and Tasks], The Korean Committee for Research in Higher Education: Seoul, pp. 24-32.

¹⁸ Lee, Mookeun, *et al.*, (1990), op. cit., p. 29.

¹⁹ Castells, M. (1994), The University System: Engine of Development in the New World Economy, in Salmi, J. and Verspoor, M. (eds.), *Revitalizing Higher Education*, Pergamon for the IAU Press: Oxford, pp. 15-16.

²⁰ In England the term ‘*university*’ has been used since Oxford and Cambridge were established, while in Korea the term was introduced after the Second World War when a new modern education system based on the American model was created. As Rothblatt pointed out, “The term ‘higher education’ implies levels of bureaucratic and technocratic organisation and co-ordination that the word ‘university’ never does.” Rothblatt, S. and Witrock, B. (eds.), (1993), *The European and American University since 1800: Historical and Sociological Essays*, Cambridge University Press: Cambridge, p. 1. In this thesis, however, the term ‘higher education’ will be used to embrace traditional and new universities, technical colleges and teacher training colleges. The expression ‘higher education institution’ is useful for this comparative study, as it covers the different kinds of institutions at post-secondary level in England and South Korea at different times. However, the thesis focuses mainly on the traditional type of university that offers teaching and research, rather than technical colleges, teacher training colleges and junior colleges. For example, the six universities selected as

case studies in Chapters Seven and Eight are examples of the conventional type of university which offers academic degrees including the PhD.

²¹ Marwick, A. (2001), *The New Nature of History: Knowledge, Evidence, Language*, Palgrave: Basingstoke, p. 3.

²² Carr, E.H. (1962), *What is History?* Macmillan & Co Ltd.: London, p. 2.

²³ Carr, E.H. (1962), *ibid*, p. 3.

²⁴ Aldrich, R. (2006), *Lessons from History of Education: The Selected Works of Richard Aldrich*, Routledge: London and New York, p. 31.

²⁵ Re-quoted from Aldrich, R. (2006), *ibid.*, p. 29.

²⁶ *Ibid*.

²⁷ Aldrich, R. (2006), *op. cit.*, p. 30.

²⁸ Aldrich, R. (2006), *op. cit.*, pp. 43-44.

²⁹ McCulloch, G. *et al.*, (2007), Editors' Introduction: Social Change in the History of Education, *History of Education*, Vol. 36. Nos. 4-5, pp 403-408.

³⁰ Yoon, Jungil *et al.*, (1979), The Improvement of Access to Higher Education and Quality Controls, [고등 교육의 기회확대 및 질 관리], KEDI: Seoul.

³¹ Lee, Donhea, *et al.*, (1982), A Study on the Idea of Higher Education and its Direction, [한국 대학 교육의 이념과 방향 정립에 관한 연구], 한국대학교육협의회,

³² Kang, Moosup, (ed.), (1990), *한국의 고등교육 정책*, [Higher Education Policy in South Korea], Kyohaksa: Seoul.

³³ Shin, Hyunsuk, (2000), *한국의 교육개혁 정책*, [Education Reform Policies in Korea], Hakjisa: Seoul. See also Shin, Hyunsuk, *et al.*, (1998), *한국 교육개혁의 정치학*, [Politics of education Reform in Korea], Hakjisa: Seoul.

³⁴ Shin, Hyunsuk, (2005), *한국의 고등 교육개혁 정책*, [Higher Education Reform Policies in Korea], Hakjisa: Seoul.

³⁵ Lee, Hyunchung, (2006), *전환기 대학교육 개혁론*, [A Theory of Higher Education Reform in Transitional Period], Mooneumsa: Seoul.

³⁶ KEDI (1998), *고등 교육 경쟁력 강화를 위한 대학원 제도 국제 비교 연구*, [A Comparative Study of Graduate School Systems for the Enhancement of the Compative Power of Higher Education], KEDI : Seoul. KEDI (1998), *21 세기 고등교육 변화와 전망*, [the Changes and the Prospect for Higher Education in the Twenty-first Century], KEDI Press: Seoul.

³⁷ Kandel, I.L. (1933), *Comparative Education*, Greenwood Press Publishers: Westpoint, Connecticut, pp. xvii-xviii.

³⁸ Kandel, I.L. (1933), *ibid.*, pp. xviii-xix.

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- ³⁹ Kandel, I.L. (1933), *ibid.*, p. xix.
- ⁴⁰ Kandel, I.L. (1933), *ibid.*, p. xxiv.
- ⁴¹ Hans, N. (1958), 3rd edition, *Comparative Education: a Study of Educational Facts and Traditions*, Routledge & Kegan Paul: London, p. 9.
- ⁴² Hans, N. (1958), *ibid.*, p. 10.
- ⁴³ Hans, N. (1958), *ibid.*, pp. 10-11.
- ⁴⁴ Hans, N. (1958), *ibid.*, p. 16.
- ⁴⁵ Holmes, B. (198-), The Contribution of Comparative Education to Educational Research, in *Essays on Comparative Education*, University of London Institute of Education, p. 147.
- ⁴⁶ *Ibid.*
- ⁴⁷ Holmes, B. (1965), *Problems in Education: A Comparative Approach*, Routledge and Kegan Paul Ltd.: London, p. 32.
- ⁴⁸ Holmes, B. (1965), *ibid.*, p. 34.
- ⁴⁹ Holmes, B. (1965), *ibid.*, p. 35.
- ⁵⁰ Holmes, B. (1965), *ibid.*, pp. 36-37.
- ⁵¹ Holmes, B. (1965), *ibid.*, pp. 37-38.
- ⁵² Holmes, B. (1965), *ibid.*, p. 40.
- ⁵³ Holmes, B. (198-), The Contribution of Comparative Education to Educational Research, in *Essays on Comparative Education*, University of London Institute of Education , pp. 154-155.
- ⁵⁴ Bereday, G. (1964), *Comparative Methods in Education*, Holt, Rinehart and Washington, INC.: New York, Chicago, San Francisco, Toronto and London, p. 10.
- ⁵⁵ *Ibid.*
- ⁵⁶ Bereday, G. (1964), *op. cit.*, p. 11.
- ⁵⁷ Bereday, G. (1964), *op. cit.*, p. 17.
- ⁵⁸ Bereday, G. (1964), *op. cit.*, p. 22.
- ⁵⁹ Bereday, G. (1964), *op. cit.*, p. 23.
- ⁶⁰ Bereday, G. (1964), *op. cit.*, p. 25.
- ⁶¹ Noah, H. and Eckstein, M. (1969), *Toward a Science of Comparative Education*, Macmillan: New York, p. 121.

⁶² Parkyn, G.W. (2007), Comparative Education Research and Development Education in Crossley, M. *et al.*, (eds.), *Changing Educational Contexts, Issues and Identities*, Routledge: London and New York, 40-45.

⁶³ Cowen, R. (2007), Last Past the Post: Comparative Education, Modernity and perhaps Post-Modernity, in Crossley, M. *et al.*, (eds.), *Changing Educational Contexts, Issues and Identities*, Routledge: London and New York, p. 168.

⁶⁴ Crossley, M. (2007), Bridging cultures and Traditions in the Reconceptualisation of Comparative and International Education, in Crossley, M. *et al.*, (eds.), *Changing Educational Contexts, Issues and Identities*, Routledge: London and New York, pp. 255-257.

⁶⁵ Cowen, R. (2008), Acting Comparatively upon the Educational World: Puzzles and Responsibilities, in Phillips, D. (ed.), *Comparative Inquiry and Educational Policy Making*, Routledge: Oxon; New York, pp. 13-14.

⁶⁶ Ibid.

⁶⁷ Becher, T. (ed.), (1987), *British Higher Education*, Allen & Unwin: London. Becher, T. (1989), *Academic Tribes and Territories: Intellectual Enquiry and the Cultures of Disciplines*, SRHE & Open University Press: Milton Keynes. Becher, T. (1993), (ed.), *Governments and Professional Education*, SRHE & Open University Press: Buckingham.

⁶⁸ Rothblatt, S. and Wittrock, B. (eds.), (1993), *The European and American University since 1800: Historical and Sociological Research*, Cambridge University: Cambridge.

⁶⁹ Clark, B.R. (1983), *The Higher Education System: Academic Organisation in Cross-National Perspective*, University of California Press: Los Angeles and London.

⁷⁰ Kogan, M. and Hanney, S. (2000), *Reforming Higher Education*, Jeessica Kingsley Publishers: London and Philadelphia.

⁷¹ Williams, G. (ed.) (2003), *The Enterprising University – Reform, Excellence and Equity*, The SRHE & Open University Press: Buckingham.

⁷² Slaughter, S. and Leslie, L. (1997), *Academic Capitalism: Politics, Policies and the Entrepreneurial University*, Johns Hopkins University Press: Baltimore, Md.; London.

⁷³ Clark, B.R. (1998), *Creating Entrepreneurial Universities: Organisational Pathways of Transformation*, Pergamon: Oxford. See also Clark, B.R. (2004), *Sustaining Change in Universities: Continuities in Case Studies and Concepts*, SRHE & Open University Press: Buckingham.

⁷⁴ Goedegeburre, L. *et al.*, (1994), *Higher Education Policy: an International Comparative Perspective*, Pergamon Press: Oxford.

⁷⁵ Neave, G. and van Vught, F.A. (1994), (eds.), *Government and Higher Education Relationships Across Three Continents: The Winds of Change*, Pergamon for the IAU Press: Oxford. See also, Neave, G. (ed.), (2000), *The Universities' Responsibilities to Society: International Perspectives*, IAU and UNESCO: Amsterdam, Lausanne, Oxford, Shannon, Singapore and Tokyo.

⁷⁶ Altbach, P.G. (1998), *Comparative Higher Education: Knowledge, the University and Development*, Ablex Publishing: Westport, Connecticut; London.

CHAPTER TWO

PERSPECTIVES, THEORIES, CONCEPTS AND MODELS

The purpose of this chapter is to introduce the key ideas and main concepts of the thesis, and to set out the theoretical frame of the comparative analysis.

The chapter will firstly sketch perspectives on the contemporary development of the national higher education systems in England and South Korea. Secondly, it will outline the main concepts of the thesis, and then present models of the relationships between higher education, the state and the economy.

Considering the long history of higher education traditions in both countries, the changes in the ideas and in the forms of higher learning over the last century have been remarkable. Among the reasons for the evident changes in higher education, the economic pressure on higher education (for example the national demand for a highly trained workforce and individual needs for economic achievement through higher qualification) has been seen as one of the primary forces. The rapidly changing core patterns of economic activities along with the advancement of scientific knowledge and technology have affected the shapes of higher education systems in England and South Korea, demanding appropriate education (knowledge and skills) as a response to those industrial changes.

The thesis examines the external relations of higher education institutions with the state and the economy. The chapter will begin by introducing the contemporary development of higher education in England and South Korea, to clarify the changing forms of higher education in each country.

PERSPECTIVES ON THE CONTEMPORARY DEVELOPMENT OF HIGHER EDUCATION

Today, higher education institutions, both in England and South Korea, serve distinctive needs for higher learning and meet various social and economic demands. However, in addition to such routine definitions of its role, higher education has become central to the political agenda in these countries, as the economic contribution of higher education - providing advanced knowledge for commercial and non-commercial purposes, and supplying a highly skilled workforce – has become critical to knowledge-based economies; indeed, the growing economic and political pressures on higher education have reshaped its ideas and purposes and have blurred its traditional boundaries.

This chapter will illustrate this proposition in terms of contemporary developments in higher education, focusing on three aspects: (1) ideas about concepts of higher education, (2) science and technical education, and (3) the state and higher education in England and South Korea.

Ideas about concepts of Higher Education

The ancient English universities of Oxford and Cambridge emerged as independent academic communities of scholars and students.¹ Their primary concerns were the training of clergymen and teachers, and maintaining the intellectual hegemony of the established Anglican order.² The unique “Oxbridge” education, based on Christian-Hellenic and liberal education traditions,³ focused on the training of future religious and political elites.⁴

The Korean education tradition was based on Confucian ideas. The state created the royal higher education institution, *Sungkyunkwan*, and played a major role in promoting Confucian studies.⁵

However, the appropriateness of education in these old institutions was challenged during the nineteenth century. In England, the relative under-performance of industry from around 1870 compared with other countries such as Germany, France and the United States increased the attention given to science and professional education as required to support industrial development.⁶ In Korea, Western culture and knowledge, which were introduced through China, Russia and later from Japan during the nineteenth century, encouraged groups of scholars to discuss the potential benefits of practical studies for the creation of national wealth.

The increased wealth created by industrial development supported the growth of the middle classes. However, it did not lead to actual changes in the ideas of appropriate education. Instead, increasing numbers of sons of the middle classes attended traditional public schools or new schools modelled after these old schools, and more absorbed into the tradition of classical education.⁷ Universities also maintained their “fusion of aristocratic and professional values,” which despised the spirit of business and industry.⁸

It was only during the last two decades of the nineteenth century that any noticeable changes in higher education were made. The creation of new universities, which was led by English entrepreneurs in large industrial cities, such as Manchester, Liverpool, Birmingham, Bristol and Leeds, was a striking development. They contributed to meeting industrial needs for a high-quality labour force with new technology and skills.⁹ In Korea, the government employed an open-door policy based on the idea of “Eastern principles and Western practices”, since it feared a decrease in national power.¹⁰ Under this new foreign policy, new institutions that could teach Western practical knowledge such as mathematics, history, geography, law and foreign languages were created by individual scholars, the government and the missionaries.¹¹

Although the creation of civic universities in English industrial cities and modern forms of higher education institutions in Korean commercial towns did not bring immediate changes in higher education traditions, it affected the existing narrow ideas of higher learning and became important in the development of national higher education systems after the end of the Second World War in both countries. As well as industrial developments, increasing interactions between countries began to influence the social and economic structure of each society.

Science and Technical Education

The development of science and technical education is another common characteristic in the development of modern higher education systems in England and South Korea.

Traditionally, in both countries, the economic influence on higher education was small. Nevertheless, towards the end of the nineteenth century alarming tendencies became clear. In England, in spite of the superior craftsmanship and talent of individuals,¹² it was clear that industry had failed to adopt new technology and new managerial skills.¹³ After the success of the 1851 Exhibition at Crystal Palace, the Paris International Exhibition of 1867 marked the relative decline of English industry, which was associated with the lack of technical education and the consequence of that for industrial performance.¹⁴

One of the reasons for the decline of British industry was the absence of a strong bourgeois or industrial elite.¹⁵ Wiener points out that the landed aristocracy was essentially capitalist but “basically rentier, not entrepreneurial or productive”.¹⁶ The growth of a rentier aristocracy delayed the rise of a capitalist bourgeoisie, maintained cultural hegemony and power of the aristocracy, and resulted in the slow merging of the two, which is described as the “civilising of the bourgeois”.¹⁷ Another worrying sign was that the English lost their earlier enthusiasm for industrialisation and began to see the industrial spirit (the respect for

machinery, efficiency and material wealth) as a conflicting value against Englishness. For example, from the 1880s, people like Toynbee began to criticise the negative results of industrialisation, the growing poverty, the increasing wealth gap, the rapid alienation of classes from each other and the degradation of a large body of producers.¹⁸ However, despite negative evaluation of the industrial spirit, compared to absence of industrial activities in Korea at the end of the nineteenth century England was still in a far better position in education for industrial and economic growth than of Korea.

Changes were made in the provision of technical instruction in England from the 1880s. In Korea, both the underdevelopment of the national economy and the Confucian tradition, which was centred on the scholarly culture of the ruling class, meant that little attention had been given to industrial development. The falling population and decreasing international and national trade were other signs of economic decline in the nineteenth century.¹⁹ Therefore, in both countries, the fall in economic productivity raised social and political concerns about the suitability of traditional education.

Nonetheless, in England changes in technical education at the university level were very slow. It was only after the end of the Second World War that science and technical education were relatively emphasised in the formal education system, although from the 1960s the idea that new technology was critical for industrial societies began to be influential.²⁰

These perspectives accelerated during the last two decades of the twentieth century. As Castells points out, the speed and the intensity of the development of scientific knowledge and technology, such as information technology, have been revolutionary in terms of the way they restructured socio-economic activities.²¹

The rapid advance in the production of scientific knowledge and technology and the commercial uses of new knowledge led many traditional industrialised countries to re-

examine their national higher education provision in order to maximise the potential economic role of higher education in the increasingly competitive international market.²² In England, the Parliamentary Report, *Realising Our Potential: A Strategy for Science, Engineering and Technology* of 1993 and in Korea the Ministry Report, *People's Government: the Direction of Educational Reform* of 1998 were examples of new policies which stressed the need for higher education institutions to be responsive to national and international economic changes.

The emphasis was on finding new forms of higher education institutions to supply cutting-edge knowledge in England and South Korea.

The State and Higher Education

These contemporary developments in higher education can be described in relation to the changing role of the state. The state in both countries has been a major reform agent in the last fifty years.

The national higher education system in England grew with the emergence of the welfare state after the Second World War.²³ The English higher education system had been highly selective, as only about three per cent of school leavers went on to higher education in 1945, and only fifteen per cent did so in the early 1970s.²⁴ By the middle of the 1990s, the enrolment of the relevant age cohort in higher education in England had grown to more than thirty per cent.²⁵ The government (in *The Future of Higher Education*) has set a new target, which is to increase the rate of participation in higher education to fifty per cent of those aged 18 to 30 by 2010.²⁶

In England, however, the expansion of higher education put a strain on the financing of it. The development of a new funding system by the Conservative government was intended to control the growing public funding to higher education from the late 1980s.²⁷ A

decade later, the consequences of tight public funding of English universities began to show as increasing student: staff ratios, poorer library accessibility and financial limits on research.²⁸ From 1997, the new Labour government introduced student fees and used links between evaluation and funding to strengthen competitive research activities in universities.²⁹ The government also introduced the idea of lifelong learning to create a skilled labour force for the national economy through various education and training programmes.³⁰

The growth of a modern higher education system in South Korea was also impressive, considering that the new system based on the American model was created only after the end of the Second World War.³¹ The role of the state in the development of new higher education system was crucial, as the government regulated the higher education sector.³² The recent reforms in higher education in South Korea have focused on graduate education and research activities in universities. For example, the new aims of the 1995 Education Reform were the diversification, specialisation and internationalisation of education and research.³³ The government also introduced market competition to improve the quality of higher education to international standards. After the Asian economic crisis of 1997, the government intensified the restructuring of higher education. During the last ten years, improving the quality of research activities in higher education has been a political priority, as the Korean government believes that R&D activities are crucial for national economic growth.³⁴

Thus, in both countries the recent development of higher education policies shows the growing responsibilities of the governments in managing the higher education sector. One of their primary concerns is leading higher education institutions to serve the changing economic needs by the creation of relevant knowledge and a suitably qualified workforce. In the contemporary development of higher education, the political interpretation of national economic needs has affected the direction of higher education institutions.

Based on this short illustration of the contemporary development of higher education in England and South Korea, this chapter will look for theoretical debates that could comprehend two very different higher education systems in England (one of the most advanced countries), and South Korea (one of the “Asian Tigers”). The theoretical framework will include examining particular features of the state and analysing the meaning of ‘knowledge’ in the emergence of a knowledge-based economy.

CONVERGENCE THEORIES AND DEVELOPMENTAL STATE THEORIES

In this section, the thesis will examine convergence theories and developmental state theories to explore their possibilities as the theoretical basis for a comparative analysis of higher education in England and South Korea.

The thesis will attempt to analyse the changing patterns of the relationship between higher education, the state and the economy comparatively at two levels: a comparison between England and South Korea, and a comparison over time. The thesis therefore needs to develop a theoretical base and categories that can embrace the different arrangements of the two higher education systems at three different periods.

Convergence Theories

The development of political discourse about the appropriate shapes and roles of higher education to the same direction in England and South Korea in the 1990s raised my attention to convergence theories, which examined common external pressures on higher education in different countries.

For example, in the early 1960s, Floud and Halsey argue that the educational system develops very close relationships with the economy in most advanced industrial societies,

which depend on research results and manpower supplied by educational system.³⁵ Investment in education becomes critical in the transition to a technological and to a democratic society.³⁶ As a result, Floud and Halsey insist that the advance of industrialism affects the shapes of education, which also influence the social structure. Therefore education is linked to society through the economy.³⁷

Among the latest analysis, Neave and Bricall examined the common external influences on the shape of higher education institutions. For example, Neave examined higher education policies in EU countries in the 1990s.³⁸ He argues that the development of ‘supranational bodies’ and ‘regional authorities’ as substantive actors has influenced the direction and the way in which higher education responds to economic or social demand.³⁹ The strengthening of the European dimension has led the changes in higher education systems in European countries in a similar direction.⁴⁰ The increasing volume of international trade in goods, capital, labour, services, knowledge and ideas restructured European industries.⁴¹ The new industrial structure and the growth of multi-national companies have influenced patterns of employment and work organisations.⁴²

According to Bricall, there are three specific developments that shape today’s higher education: technical changes, the increased importance of services in society, and the enlargement of the framework of higher education activities within tight budgets.⁴³ For example, the development of information and communication technologies has influenced the provision of education and research, and the diversifying labour market requires sophisticated training programmes.⁴⁴

Castells similarly describes the characteristics of the economy at the end of the twentieth century as “informational, global and networked”, as new technologies are more powerful in economic growth and for commercial uses than ever before.⁴⁵ He points out that “the world is closely interconnected, and the process of development does not proceed stage

by stage but must be based on the proper linkages between national and regional economies with very different technological compositions”.⁴⁶

These studies therefore stress that the features of economic development (through advanced technology, and growing international flow of knowledge, information and services) and social development (through the improvement of social services) influence the shape of higher education today.

Although these analyses focus mainly on the cases of European countries, they can be applied beyond the European boundaries. For example, as Floud and Halsey pointed out, the relation between education and the economy became increasingly indispensable both in England and South Korea. Neave’s idea of the emergence of ‘supranational power’ is also useful in comparing the English and Korean higher education systems. World organisations, such as the OECD, the WTO and the GATT, influenced the direction of policy development at the national level in both countries. In the same context, Bricall’s three features, and Castells’ analysis on character of the economic changes can also be used in analysing common external factors, which affects policy makers in these two countries.

Universities in developed countries in particular have been asked to respond to various external pressures. For this reason, conscious policy decisions have been made to ensure coherent changes in universities. Neave points out that the state has therefore acted as a force for converging or homogenising the higher education system in different countries.⁴⁷ For example, the governments in England and South Korea both introduced neo-liberal policies to improve the accountability and the efficient management of higher education systems.

Neave describes these roles of governments as those of the “supervisory state” that develops broad lines of policies, but allows room for each institution to respond.⁴⁸ In many ways, the governments’ common interests in higher education – managing expanding higher

education systems cost-efficiently, serving national economic needs - have acted as powerful forces to create similar higher education policies in different countries. In other words, governments take similar policy options in leading higher education to respond to the increasing external pressures.⁴⁹

Thus, among different convergence perspectives, Neave's approach can be applicable to this comparative study of England and South Korea. His perspective permits me to see both the international influences (particularly by the increasing economic globalisation) on local institutions and the directions of governments' current policy development in England and South Korea. The English government, like other EU governments, is trying to reconcile national policies on research and higher education within the European Union and to encourage the trans-national dimensions of research, education and labour. The Korean government understands this trend in European countries, and tried to keep up with these changes in order to compete with them.

This attention to the role of the government in the development of higher education policy led to an examination of developmental state theories, which stress the role of the government in national development, as another possibility for a theoretical framing of this study.

Developmental State Theories

During the last decade, in spite of late industrialisation, the sustained economic development of South Korea, along with that of other East Asian countries, has attracted international attention.⁵⁰ For example, recent policy developments in England show the increasing role of the state in directing higher education to meet economic needs, which has been a major developmental strategy in South Korea. Therefore a comparative analysis based

on developmental state theories might be useful for examining the changing roles of government in England and South Korea over the last century.

The term ‘developmental state’ has been used in describing the mode of development of the four ‘Asian tigers’: Taiwan, South Korea, Singapore and Hong Kong, since Johnson used it in his study of Japan’s post-war economic transformation.⁵¹ Developmental state theories argue that the state in some East Asian countries played a major role through developing a “politico-economic strategy” for the process of national development.⁵²

Developmental state approaches emphasise the state’s involvement in national economic activities, which involves various kinds of policies, such as government subsidies for exports and new product development, controls over banking and capital movements, the use of differential interest rates and measures to encourage domestic saving and foreign investment, imports and licensing controls to protect infant industries, and substantial support for national education development.⁵³ For example, Ashton *et al.* argue that the governments of Singapore, Taiwan and South Korea exercised a powerful role in directing economic development and in providing the types of skills necessary for the labour market.⁵⁴ The economies of East Asian countries from 1965 to 1990 - Hong Kong, South Korea, Singapore, Taiwan, Japan, China, Malaysia, Indonesia and Thailand - grew faster than those of any other region in the world.⁵⁵ Interestingly, during the same period, these countries achieved the expansion of education as well. This coincident pointed out the possible links between the role of education and national development.

There are different explanations of successful economic development in East Asia. Some argue that the government’s role was critical, while others point to the role of Confucianism.⁵⁶ However, it has generally been accepted that education’s role as an investment in human capital has been crucial for rapid economic growth.⁵⁷ There have been

efforts to analyse systematically how national investment in education and training has worked effectively in some of these countries.⁵⁸

Table 2.1 shows the expansion of the national education system in these countries. A high level of access to primary education in the early stage of economic development (for example in 1965 in Table 2.1) was common to all them. The Table also shows that the timing of the expansion of secondary education (the enrolment rate was doubled between 1965 and 1986) supported the continuing economic development; as such growth could provide the necessary skilled labour.

Table 2.1 Percentages of Age Groups Enrolled in Education

	Primary		Secondary		Tertiary	
	1965	1986	1965	1986	1965	1986
Taiwan	97.15	99.57	-	92.19	-	25.18
South Korea	101	115	35	95	6	33
Singapore	105	115	45	71	10	-
Hong Kong	103	105	29	69	5	13

Source: Morris, P., (1996), Asia's Four Little Tigers: comparison of the role of education in their development, *Comparative Education*, Vol. 32, No.1, p. 100.

In tertiary education, Taiwan and South Korea expanded more quickly than the others. This was partly because of the governments' tighter control and a larger private tertiary education sector than in Singapore and Hong Kong.⁵⁹

For example, Singapore, South Korea, Taiwan and Hong Kong employed an 'interventionist strategy' and supported export-oriented industries in the earlier industrialisation period, and turned to the production of high value-added goods and services.⁶⁰

Following such an interventionist strategy, the state in Taiwan, South Korea, Singapore and Hong Kong could develop close links between economic development and education and skill formation systems. The states employed channels and mechanisms to exercise strong central power in the development of national education and training

systems.⁶¹ The unique feature of Singapore, Taiwan and South Korea was “the ability of the state” to maintain the linkages between education and training systems and demand from the rapidly changing economy.⁶²

In the case of South Korea, as Johnson explains, “the Korean situation of late industrialisation” allowed the government to lead national economic development, intervening in the domestic market in order to achieve high-speed economic development effectively.⁶³ The state-guided systems and the government’s protection policies supported the development of national industry.⁶⁴

In addition, the expansion of primary and secondary education during the earlier period of industrialisation contributed to national economic development. Ashton *et al.* pointed out that the development of the national education system in Korea was distinctive, as there was “no shortage of takers in education and the demand for schooling has been driven both by the high status of the scholar based on Confucian ideas and the high economic returns”.⁶⁵

The South Korean case shows the substantial importance of education and training in the country’s economic development. According to Ashton, this is significant compared with the education systems in many Western countries, in England in particular where the development of the national education system was driven by the needs of various status and community groups and professions.⁶⁶

Thus developmental state theories offer an interesting perspective for understanding the important role of higher education in the context of national development by analysing the successful economic development strategies in East Asian countries. The successful cases of these countries attracted other developed countries’ attention to the potential role of the state. Thus developmental state theories could help to compare the changes in higher education in England and South Korea in terms of political perspectives.

However, after the initial success of industrialisation, many Asian countries experienced increasing difficulties in directing national economic development. For example, the labour-intensive manufacturing industries faced pressure from growing wage bills and competition in the international market.⁶⁷ South Korea also encountered internal and external problems when entering the 1990s. The public demand for democratisation and the decentralisation of national policy increased, and international society asked the government to open up and deregulate the national market. In these changes, it was difficult for the government to maintain the same development strategy.

The developmental state approach could underestimate the limits of manpower planning and of the control of educational flows.⁶⁸ For example, the Korean government failed to promote vocational education, and over-produced graduates (in Arts and Social Sciences in particular) from the 1980s. In fact, the existing Korean education system has become problematic, as it is no longer appropriate in the era of ICT and economic globalisation.⁶⁹ Korean industries require a creative, flexible and multi-skilled workforce, and cutting-edge technology. The Korean government, therefore, initiated new higher education policies, which focused on the diversification of education and the enhancement of research activities in higher education institutions.⁷⁰

Nonetheless, the developmental state theories help to understand the critical role of the state in South Korea and the increased intervention of the English government during the last twenty years. However, they are at disadvantage for the understanding of the complex interaction between the university and society in the formation of new shapes of higher education.

Overall, convergence and developmental state theories are offering useful ways for examining the changes in higher education in the two countries. However, this study still lacks a concrete tool for approaching from wider perspectives to the complicated interactions

of stake holders in the development of higher education policies. Therefore in order to explore the structural relations between higher education, the state and the economy, this chapter will present an interpretive tool: models of the relationships between higher education, the state and the economy.

Before the chapter moves on to the discussion of models of these relationships, it will be useful to discuss different ideas about knowledge, which will help to demonstrate the changing valuation of knowledge in higher education.

KNOWLEDGE

As this chapter showed in its opening discussion, changes in the ideas about what counts as valuable knowledge are not new. The value of various types of knowledge can be understood differently in different times.⁷¹ For example, when practical knowledge, (such as natural sciences, geography, history and medical knowledge) was introduced from Western countries to Korea in the nineteenth century, it was believed that this new knowledge was more powerful than Confucian knowledge.⁷² As industrialisation has proceeded, knowledge production has been understood as a kind of investment, as new knowledge has been required in the whole process of industrial activities.⁷³ Recent achievements in the development of scientific knowledge and technology – such as bio-engineering and IT and communication technology - have diversified the usage of knowledge in industry. Especially, ‘knowledge’ itself has been commercialised as intellectual goods. The commercialisation of knowledge in industry highlights the importance of new knowledge as the most powerful source for the creation of wealth.⁷⁴

Thus the emergence of new kinds of knowledge over time has altered views on the production and the distribution of knowledge.⁷⁵ However, the recent development in the

ways of knowledge production and the way it affects higher education is significant. New terminologies, such as “knowledge mode 2”, “the knowledge-based society”, and “the knowledge industry” have been increasingly used by academics, economists and politicians.

Therefore the thesis identifies the shifting valuation of knowledge as one of the key concepts in understanding changes in the shapes of higher education. For that reason, the thesis will investigate the different ways of knowledge production, and its effect on university research in England and South Korea.

New knowledge is vital for industries to ensure a comparative advantage and successful performance in a competitive market.⁷⁶ Gibbons *et al.* argue that a new mode of knowledge production has emerged, which is different from the traditional way of knowledge creation.⁷⁷ They distinguish the new kind of knowledge, “Knowledge mode 2”, from the old types of knowledge, “Knowledge mode 1”.⁷⁸ The new kind of knowledge is fundamentally different in the way it is produced and applied, as it moves across disciplines, opening up vast possibilities of interconnection in the creation of new knowledge.⁷⁹

First of all, the features of Knowledge mode 1 will be discussed in order to understand the features of Knowledge mode 2. Knowledge mode 1 refers to knowledge which is produced in the traditional way; generated without practical goals but defined in relation to the cognitive and social norms that govern basic research and academic science.⁸⁰ New knowledge in mode 1 is communicated through institutional channels and shared by professional groups.⁸¹ In this mode, “quality and professional control over what problems and techniques are deemed important to work on as well as who is qualified to pursue their solution”, are determined by peer judgements.⁸² Therefore mode 1 is discipline-based knowledge production, as important decisions about legitimate questions and methods are made within each discipline.⁸³ Each discipline reviews the quality of knowledge and the



advancement. Thus mode 1 knowledge is homogeneous, as academics in universities are the main knowledge producers.⁸⁴

Contrastingly, knowledge mode 2 has emerged as a result of the possible advantage for both creators and users that new knowledge may create in the market, according to the practical relevance of a particular discipline for a particular application.⁸⁵ The dynamics of mode 2 Knowledge in the market come from the transdisciplinary nature of such knowledge:⁸⁶

Mode 2 knowledge production is transdisciplinary. It is characterised by a constant flow back and forth between the fundamental and the applied, between the theoretical and the practical. Typically, discovery occurs in contexts where knowledge is developed for and put to use, while results - which would have been traditionally characterised as applied - fuel further theoretical advances.

The development of communication technology boosts the 'transdisciplinary' quality of new knowledge, reducing the gap between knowledge producer and knowledge user.⁸⁷ The production of new knowledge mode 2 in any field can generate further benefits through its flexible interrelation with other fields. This means that the 'social distribution' of new knowledge is greater than that of traditional knowledge.⁸⁸

Mode 2 knowledge is also characterised by 'heterogeneity and diversity' at the organisational level.⁸⁹ For example, a range of different organisations work together in knowledge production by forming networks of communication to respond to the market. Therefore the quality of mode 2 knowledge can be decided not only by peer judgement but also by multidimensional criteria, such as market competitiveness, cost effectiveness and social acceptability.⁹⁰

As Rip points out, "features of mode 2 knowledge have been the rule in new knowledge production rather than an exception".⁹¹ For example, new knowledge in chemistry, pharmacy and electronics has always been created in the context of application, with active interactions between organisations. However, the trend towards mode 2

knowledge is evident, and the increasing mode 2 knowledge production blurs the divisions between science and society, or science and the market.⁹²

The changes in knowledge production create new kinds of academic culture in higher education. Especially, new ways of knowledge production have challenged post-graduate education and research activities in universities in England and South Korea, where general education at undergraduate level had long been regarded as the main business of higher education. The different historical developments of research institutions in the higher education systems of Germany, the United States, England and South Korea can show the particular difficulties that English and Korean universities are experiencing in the new culture of knowledge production.⁹³

The early development of research-oriented institutions was based on Humboldt's idea of the university, which was influenced by the historical development of German politics and culture in the eighteenth and the early nineteenth century.⁹⁴ According to Gellert, the philosophy of idealism that pursued 'absolute knowledge', redefined 'academic learning and research' (*Wissenschaft*) in the university and re-established the university's relations with the society and the state.⁹⁵ Wilhelm von Humboldt transformed the idea of academic learning and research successfully into a new idea of the university by redefining "the fundamental difference between a practical and vocational education and general education (which) is based on pure academic learning and research".⁹⁶

The new principle was applied to the foundation of Berlin University in 1809.⁹⁷ This established a new model of university based on the 'pure idea of science' which is 'education through science', (*Bildung durch Wissenschaft*).⁹⁸ In fact, Germany was the only place in Europe where students could learn how to do "scientific or scholarly research" in the 1870s.⁹⁹ In the United States, the German research model was developed radically, achieving a unique differentiation in the higher education system.¹⁰⁰

However, in England and South Korea, research activities in universities lagged behind. In English universities, with their strong elite education tradition, graduate education and research were more neglected than in other Western countries.¹⁰¹ In Korea, there were few research activities in universities during the early period of national development. Based on the American model, Korean universities only managed to develop as teaching-oriented institutions with limited resources.¹⁰²

However, in both countries, teaching-oriented higher education was pressured to change in the rise of the knowledge-based economy. The high-speed creation of new knowledge in science and technology and the worldwide expansion of capitalism have accelerated research activities in higher education.¹⁰³ Now, both academics and researchers in universities and specialists outside universities are involved in creating new knowledge. Higher education institutions work together with industries to enhance national economic power, and to invent new businesses by applying new knowledge directly to commercialisation. Although universities are not the only producers of knowledge any more, they are still very capable and influential institutions for knowledge production, linking technology, industry and market forces.¹⁰⁴ Therefore, as Barnett points out, the innovative changes in knowledge creation and research and development (R&D) transform universities into 'entrepreneurial' or 'corporate' universities.¹⁰⁵

Thus the emergence of new ways of knowledge production, the rise of the knowledge economy, and economic globalisation during the last two decades has stressed the role of research in higher education. These changes are also creating a new culture of knowledge production both inside and outside higher education institutions, and affecting the relationships between higher education, the state and the economy. Therefore, in this study, understanding the shifting valuation of knowledge in different times and the diversifying usage of knowledge is important.

In the final section, this chapter will propose models of the relationships between higher education, the state and the economy as a way to structure the comparative analysis in each later chapter.

MODELS OF RELATIONSHIPS BETWEEN HIGHER EDUCATION, THE STATE AND THE ECONOMY

In this section, this chapter will describe three models of relationships between higher education, the state and the economy.

Earlier in this chapter, developmental state theories and convergence theories were examined to form the analytical frame of the thesis. It was suggested that convergence theories focus on international influences on the policies for higher education, and developmental state theories stress the substantial role of the government in national development and hence in the direction of higher education institutions. However, the thesis still needs a more precise perspective to explain the intricate relationship between higher education, the state and the economy. For this reason, the thesis presents models of the relationships which could be used to examine the changing external relationships of higher education in a society.

In the construction of the idea of models of the relationships between higher education, the state and the economy, I have tried to illustrate the changing attitudes within members of the triad towards to each other. Previous studies have influenced the development of the models.¹⁰⁶ Barnett (1990), for example, analyses the changes in the idea of higher education by examining the process of negotiation between the conceptual understanding of higher education and the expansion of the social, political and economic services of higher education.¹⁰⁷ He also offers a re-interpretation of liberal education, which he contends, can still be realised in higher education, by enhancing the intellectual

independence of learning in it, while also serving the wider society. Similarly, as I began my study by identifying the traditional forms of higher education in order to examine how the higher education traditions have been altered over time, I was able to see how the Korean higher education tradition, which collapsed during colonisation, has been perpetuated even through the new and modern system.

Barnett's question about the adequacy of justification of what counts as suitable knowledge for higher education, and the analysis of Gibbons *et al* (1994) of the mode 2 knowledge, also supported me as I paid attention in the construction of models to the changing valuation of knowledge.¹⁰⁸

Berdhal (1995) describes how British universities, which enjoyed relatively high autonomy, began to accommodate the growing state commitment to higher education after the end of the Second World War.¹⁰⁹ His description explains clearly their changing relationships with the government. Clark (1983) analysed the shifting balance between higher education and the state due to the competing power of the academic oligarchy, state authority and the market.¹¹⁰ He proposed three ideal types of higher education: the state system, the market system and the professional system. He then tried to position national systems of higher education (in Sweden, France, Britain, Canada, Japan and the United States), to illustrate the degree of democracy, integration and changes in each system. Clark's diagram of the Triangle of Coordination helped me to visualise my models so that I could identify the re-positioning of higher education in the changing relations of the triad.

In addition, Neave's (2000) attention to the aims and purposes of higher education, in relating to its newly created responsibilities¹¹¹ and Castells' (2000) illustrations of the economic and technical changes and their influence on higher education¹¹² gave me a more clear understanding of the modern economic activities which increased the pressures on higher education. The models will be used as interpretative devices for this thesis

The Tower Model

The concept of the “tower” includes clear boundaries by implicating an isolation of higher education from the state and from the economy. The Tower Model can be applied to the analysis of traditional forms of higher education institutions’ relation with the state and the economy in England and Korea. In the Tower Model, higher education, the state and the economy keep distinct boundaries.

In this model:

- i. The most important form of knowledge in higher education is liberal knowledge. The choice of knowledge in higher education should not be affected by direct political interests or economic pressure.
- ii. Higher education’s important role is the reproduction of social and political elites. Elites in this model include traditionally and narrowly defined professions, such as those of political elites, religious leaders and academics.
- iii. The state’s role in higher education is very small. Higher education remains isolated from the public, as access to higher learning is limited to the ruling class.
- iv. Higher education stays away from the direct pressure from the state and the economy, as higher education maintains a high degree of institutional autonomy and academic freedom in teaching and learning activities.

The Bridge Model

The term “bridge” implies a link or links between higher education, the state and the economy. The Bridge Model proposed in this chapter can be applied to the examination of higher education in England and South Korea in the 1960s and the 1970s. In the Bridge Model, higher education expands, industries develop and the state leads the development of the national higher education system. Hence, the distinct boundaries between them in the Tower Model are loosened.

In this model:

- i. The most important form of knowledge in higher education is scientific knowledge and technology. The economic influences on the choice of knowledge in higher education are growing.
- ii. Higher education plays wider roles in society. In addition to educating traditional elites, the production of economic elites and the supply of specialists to industries become important roles of higher education.
- iii. The state's role in the development of the national higher education system increases. The state decides public funding to higher education and takes over more responsibilities for national higher education provision.
- iv. Higher education institutions make modest contribution to the economy through education programmes and research activities.

The Net Model

The term “net” is used to express the emergence of various kinds of collaborative relationships between higher education, the state and the economy. The Net Model can be applied to the analysis of the changes in higher education during the last two decades in England and Korea. In this model, the boundaries between higher education, the state and the economy collapse, and various forms and multiple webs of active and collaborative partnerships emerge.

In this model:

- i. What counts as “the most important knowledge” depends on the potential economic value that new knowledge can generate. The choices of knowledge, and of new knowledge production, in higher education are significantly influenced by its possible commercial value in terms of its applicability to the market.

- ii. Higher education maintains the role of elite formation. However, the old notion of the elite is no longer suitable for a highly specialised and diversified labour market. Higher education in the Net Model is responsible for the production of wider ranges of educated professions (old and new) and new knowledge.
- iii. The state considers higher education in relation with the national and international economy. The state develops controlling mechanisms for the monitoring efficiency, accountability and quality of higher education and to lead higher education institutions, to meet the changing economic conditions.
- iv. The political analysis of national economic conditions influences the direction of higher education. Entrepreneurial principles are applied to the development of educational programmes, research activities and the management of institutions.

Thus this thesis identifies three possible models: the Tower Model, the Bridge Model and the Net Model. Table 2.2 presents the key characteristics of each model. As Table 2.2 shows, each model specifies a particular form of relationships between higher education, the state and the economy.

Table 2.2 Models of Relationships between Higher Education, the State and the Economy

	The Tower Model	The Bridge Model	The Net Model
Choices of knowledge in higher education	Liberal knowledge	Specialised knowledge	Applicable knowledge
Socio-political role of higher education	Reproduction of the ruling class based on academic oligarchy	Formation of professional elites based on meritocracy	Economic contribution through knowledge production and professional education
The state's role in higher education	Spectator	Regulator	Supervisor
Economic link with higher education	Incidental separation	Specific liaisons	Collaborative partnerships

In the first row of the Table, the choices of knowledge in higher education represent the knowledge which is most respected. For example, in the Bridge Model, specialised knowledge is considered as more important than others. Thus studies in natural science subjects are more encouraged than philosophy, history or theology. Applicable knowledge in the Net Model refers to the “cutting-edge” knowledge in various fields of science which can be easily commercialised therefore it is different from the scientific knowledge and technology in the Bridge Model.

The socio-political role of higher education reflects the primary concern of higher education. The model does not rule out other roles; it rather emphasises the widening roles of higher education in a society. The bottom two rows show higher education’s relation with the state and the economy in each model. Different terms can be used instead of those used in the Table according to different perspectives. However, in Table 2.2, the thesis tries to capture the key characteristic of the government in national higher education provision and the unique character of the economic links to higher education in each model.

Overall, Table 2.2 shows, firstly, the increasing political influences on higher education over the last hundred years; these have continuously re-shaped and re-positioned higher education in each society.

The thesis refers to the growing economic influence on the position of higher education in society as a ‘tectonic change’, as the changing pattern of economic activities, and its impact on the labour market and then on education institutions is substantial. Then the new labour market demands different education and training programmes. The tectonic changes reform the labour market and influence ideas about the role of higher education (the nature of teaching and research); therefore they re-position higher education institutions in society, shaking up the existing relationships between higher education, the state and the economy.

Secondly, the Table also presents the institutional struggles to redefine the appropriate setting of knowledge in high education. The massive expansion of higher education underlines the importance of teaching the right kind of knowledge and skills to achieve the qualities required for the workforce. The emergence of the knowledge economy has highlighted the role of higher education as the primary institution of knowledge production.

Today, the possession of “cutting-edge” knowledge and the ability to commercialise them increase the extra competitive power in the international market. Such knowledge includes not only scientific and technological knowledge but also new knowledge in every field. For example, new knowledge in history, archaeology, geography and biology can be used in commercial products like educational programmes. New knowledge in psychology and IT can be employed in advertising and marketing. Language and cultural studies can aid firms and business to assist international trade and marketing. The ways of using knowledge have been diversified dramatically.

Thus, new ways of knowledge production in higher education under the influences of economic globalisation have been powerful moving forces for changes in the patterns of the relationship which have been suggested in this chapter.

In the following chapters, the thesis will employ the three models to discuss the changes in higher education and the relationships between higher education, the state and the economy, focusing on three particular periods.

ENDNOTES FOR CHAPTER TWO

¹ From the beginning, Oxford and Cambridge, like other European universities, were religious institutions. Halsey, A.H. and Trow, M. (1971), *The British Academics*, Faber and Faber: London, p. 34.

² Scott, P. (1995), *The Meanings of Mass Higher Education*, The SRHE & Open University Press: Buckingham, p. 12.

³ It was believed that liberal education could produce a balanced human being. Rothblatt, S. and Wittrock, B. (eds.), (1993), *The European and American University since 1800: Historical and Sociological Essays*, Cambridge University Press: Cambridge, pp. 22-27.

⁴ Tapper, T. and Salter, B. (1992), *Oxford, Cambridge and the Changing Idea of the University: the Challenges to Donnish Domination*, The SRHE & Open University Press: Buckingham, p. 10.

⁵ Son, Insoo, (1998), *한국 교육사 1*, [A History of Korean Education 1], Muneumsa: Seoul, pp. 334-337. Those moral values were key concepts for understanding law and order, harmony and social relations in ancient Korean society. See also Choi, Bongyoung, (1998), *한국 교육 본질과 오도* [An Apprehension of the Nature of Korean Education], *전통과 현대*, [Tradition and Today], Summer, pp. 73-74.

⁶ Herbert Spencer and T.H. Huxley strongly emphasised the importance of education in industrial sciences in universities, while Newman, J.S. Mill and Mark Pattison defended liberal education, arguing against the use of universities for vocational training. Sanderson, M. (1972), *The Universities and British Industry 1850-1970*, Routledge & Kegan Paul: London, pp. 4-7.

⁷ Wiener, M.J. (1981), *English Culture and the Decline of the Industrial Spirit 1850-1980*, Penguin Books: Harmondsworth, pp. 16-17.

⁸ Wiener, M.J. (1981), *ibid.*, pp. 22-23.

⁹ Jones, D. R. (1988), *The Origin of Civic Universities: Manchester, Leeds & Liverpool*, Routledge: London, pp. 47-48.

¹⁰ The Korean government had been reluctant to introduce foreign knowledge into Korea. However, the government became desperate to modernise the national military system so as to protect national security, fearing increasing foreign power in the late 1870s. The government had to seek a policy that could strengthen national military power and bring practical benefits to Korea. KEDI, (1994), *한국 근대 학교교육 100 년사 연구(1): 개화기의 학교 교육*, [A study of the History of Modern Education under the Late Yi Dynasty], KEDI Press: Seoul, p. 9.

¹¹ KEDI, (1994), *ibid.*, pp. 17-28.

¹² Ashby says that “Britain’s industrial strength lay in its amateurs and self-made men: the craftsman-inventor, the mill-owner, the iron-master... In the rise of British industry the English university played no part whatever, and Scottish universities only a very small part; indeed formal education of any sort was a negligible factor in its success.” Sir E. Ashby,

(1961), *On Universities and Scientific Revolution*, in Halsey, A.H., Floud, J. and Anderson, C.A., *Education, Economy and Society- a Reader in the Sociology of Education*, The Free Press: New York, Collier-Macmillan: London, p. 466.

¹³ Sanderson pointed out that the failure of the Great Exhibition in 1867 led the English to recognise their backwardness in the technology, advanced knowledge and educated personnel required to compete with foreign countries. Sanderson, M. (1972), *The Universities and British Industry, 1850-1970*, Routledge & Kegan Paul: London, p. 12.

¹⁴ English entrepreneurs were aware of the practical value of science in its application to manufacturing industries as early as in the seventeenth and eighteenth century. However, science education was considered as inferior to liberal education as it was associated with practical (vocational) purposes by the middle of the nineteenth century. Nonetheless, the increasing competition from other countries like Germany highlighted the importance of science and technical education for industrial prosperity. Cotgrove, S. (1958), *Technical Education and Social change*, George Allen & Unwin Ltd.: Paulton and London, pp. 11-19.

¹⁵ Wiener, M.J. (1981), *English Culture and the Decline of the Industrial Spirit 1850-1980*, Penguin Books: Harmondsworth, p. 8.

¹⁶ Ibid.

¹⁷ Ibid.

¹⁸ Wiener, M.J. (1981), op. cit., pp. 82-83.

¹⁹ Rhee, Y. and Park, Y. (2004), *농촌 미곡시장과 전국적 시장통합*, [Rural Rice Market and Market Integration at the National Level, 1713-1937], in Rhee, Y. (ed.), *수량 경제사로 다시 본 조선 후기*, [Re-examination of the Late Chosun by Economic Statistics], Seoul National University Press: Seoul, pp. 257-258.

²⁰ Halsey *et al.* pointed out that educational systems in advanced industrial societies develop close relations with the economy, as modern industrial technology introduces more intricate forms of the division of labour, and transforms the scale of production, the economic setting of enterprises, and the productive and social role of labour. Education attracts national investments, as a source of technological innovation and as an apparatus which serves occupational recruitment and training. Halsey, A.H. Floud, J. and Anderson, C.A. (1961), *Education, Economy and Society: A Reader in the Sociology of Education*, The Free Press: New York, Collier-Macmillan: London, pp. 1-2.

²¹ Castells shows how rapidly our life has been influenced by the development of information technology, such as micro-electronics, computers, telecommunications, PC softwares and the internet, during the last three decades. He explains that the commercialisation of technological development has transformed social and organisational interactions and economic activities. Castells, M. (2000), *The Information Age: Economy, Society and Culture Vol. 1. The Rise of the Network Society*, 2nd edition, Blackwell Publishing: Oxford, pp. 39-53.

²² Dill, D. and Sporn, B. (eds.), (1995), *Emerging Patterns of Social Demand and University Reform: Through a Glass Darkly*, Pergamon for the IAU Press: Oxford, p. 51.

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- ²³ Universities and colleges were still private institutions in the late nineteenth century, and the state's involvement in the development of higher education was limited. Scott, P. (1995), op. cit., p. 14.
- ²⁴ Henkel, M. and Kogan, M. (1993), Research Training and Graduate Education: the British Macro Structure, in Clark, B.R.(ed.), *The Research Foundations of Graduate Education - Germany, Britain, France, United States*, University of California Press: Berkeley, Los Angeles, Oxford, p. 71.
- ²⁵ Altbach, P.G., (1998), *ibid.*, p. 7.
- ²⁶ Department for Education and Skills (DfES), (2003), *The Future of Higher Education*, p. 17.
- ²⁷ Taylor, J. (2003), Sticks and Carrots: the Effectiveness of Government Policy on Higher Education in England since 1979, *Higher Education Management Policy*, Vol.15, No.1, p. 95. The enrolment rate of the age cohort in the 1960s was only 8 per cent, but grew to 28 per cent in 1990 and 31 per cent in 1994. Scott, P., (1995), op. cit., p. 22.
- ²⁸ Pickering, J.F. *et al.*, (1999), The University: Industry Interface in the Generation of Intellectual Property, *Higher Education Quarterly*, Vol.53, No.1, p. 14. See also Green, A. *et al.*, (1999), *Convergence and Divergence in European Education and Training Systems*, Institute of Education, University of London: London, p. 206.
- ²⁹ Hare, P.G., (2003), The United Kingdom's Research Assessment Exercise: Impact on Institutions, Departments, Individuals, in *Higher Education Management Policy*, pp. 57-60.
- ³⁰ Hodgson, A. and Spours, K.. (1999), *New Labour's Educational Agenda- Issues and Policies for Education and Training from 14+*, Kogan Page: London, pp. 92-96.
- ³¹ KEDI, (1996), *국가 발전에서의 교육 역할 분석 연구*, [An Analytical Study of the Role of Education in National Development], KEDI: Seoul, p. 151.
- ³² Kim, K. *et al.*, (1993), *한국 경제 구조*, [The Structure of the Korean Economy], Hanul Academy Publisher: Seoul, p. 146.
- ³³ Kim, Sungjae, (1999), The *Kookmin's* Government: the Evaluation and the Task of Education Reform of the First Year, *평화 논총*, [Peace Forum], Vol.3, No.1, p. 166.
- ³⁴ Lee, Jangjae, *et al.*, (1997), *대학연구의 미래: 조직연구 단위 중심으로*, [The Future of University Research in Korea - Focusing on Organised Research Units (ORUs)], Science and Technology Policy Institute: Seoul, p. 4.
- ³⁵ Floud, J. and Halsey, A.H. in Halsey, A.H. Floud, J. and Anderson, C.A. (1961), *Education, Economy and Society- a Reader in the Sociology of Education*, The Free Press: New York, Collier-Macmillan: London, p. 1.
- ³⁶ Floud, J. and Halsey, A.H., (1961), op. cit., p. 2.
- ³⁷ Floud, J. and Halsey, A.H., (1961), op. cit., p. 12.

³⁸ Neave, G. (1995), *The Stirring of the Prince and the Silence of the Lambs: The changing Assumptions Beneath Higher Education Policy, Reform and Society*, in Dill, D. and Sporn, B., (eds.), *Emerging Patterns of Social Demand and University Reform: Through a Glass Darkly*, Pergamon for the IAU Press: Oxford. see also, Neave, G. *et al.*, (eds.), (1996), *The Mockers and Mocked: Comparative Perspective on Differentiation, Convergence and Diversity in Higher Education*, Pergamon for The IAU Press: Oxford.

³⁹ Initially, Neave explained the similar direction of changes in higher education in EU countries across the three levels: region, nation and the EU. Meek, V.L. *et al.*, (eds.), (1996), *op. cit.*, pp. 30-31.

⁴⁰ Meek, V.L. *et al.*, (eds.), (1996), *ibid.*, pp. 29-30.

⁴¹ For example, the technological development of satellite, fibre optics, email, internet and digital communication has improved the speed, ease, efficiency and cost of communications. In the OECD countries, international communications traffic grew more than 10 per cent annually between 1988 and 1992. The software market also grew 17.5 per cent between 1991 and 1993. Therefore, now information can be accessible instantaneously around the world at low cost. Green, A. *et al.*, (1999), *Convergence and Divergence in European Education and Training Systems*, Institute of Education, University of London: London, p. 4.

⁴² Green, A. *et al.*, (1999), *op. cit.*, pp. 5 and 7-9.

⁴³ Bricall, J. (2002), *Change and Convergence in European Universities*, in Mathias, D., *et al.*, (eds.), *European Universities: Change and Convergence?*, Brussels: Edition de L'Université de Bruxelles, pp. 34-38.

⁴⁴ Bricall, J., *op. cit.*, p. 33.

⁴⁵ Castells points out that the informational technology revolution has provided the indispensable material basis for the creation of an informational (depending on the capacity to generate process and apply) global (organised in a global scale) and networked (interaction between business networks) economy. Castells, M. (2000), *The Information Age: Economy, Society and Culture Vol. 1. The Rise of the Network Society*, 2nd Edition, Blackwell Publishing: Oxford, pp. 77-78.

⁴⁶ Castells, M. (1994), *ibid.*, p. 15.

⁴⁷ Neave draws attention to the homogenising forces of the nation state and those of emerging supranational structures, especially in Europe, as national government sometimes operate as powerful forces for homogeneity due to their needs for standardisation. Meek, V.L. *et al.*, (eds.), (1996), *The Mockers and Mocked: Comparative Perspective on Differentiation, Convergence and Diversity in Higher Education*, Pergamon for the IAU Press: Oxford, p. 9.

⁴⁸ Neave, G. (1995), *The Stirring of the Prince and the Silence of the Lambs: The changing Assumptions Beneath Higher Education Policy, Reform and Society*, in Dill, D. and Sporn, B. (eds.), *ibid.*, p. 61.

⁴⁹ Nowotny explains the institution of mass higher education and its influences on other institutions of society. For example, mass higher education creates large populations of scientists and engineers which can be at risk of devaluation in the labour market. Continuing education and life-long training and education are needed, so that the labour market can stay competitive. Nowotny, H. (1995), *Mass Higher Education and Social Mobility: A Tenuous Link*, in Dill, D. and Sporn, B. (eds.), *Emerging Patterns of Social Demands and University Reform: Through a Glass Darkly*, Pergamon for the IAU Press: Oxford, p. 82.

⁵⁰ Many Western countries paid attention to the important role of the state in national development, as the successful industrialisation in some East Asian countries during the last three decades was recognised. World Bank, (1997), *World Development Report 1997: the State in a Changing World*, Oxford University Press: New York, pp. 29-33.

⁵¹ Green explains that the 'developmental state' is also relevant for understanding state formation and for development of national education systems in Germany, Austria and France in the nineteenth century as well as France and Sweden in the post-war period. The unique features of the developmental state have been the dynamic roles played by the state leadership and bureaucracy in relation to civil society. Green, A. (1997), *Education, Globalisation and the Nation State*, Macmillan: Basingstoke, pp. 31-32.

⁵² In addition, these countries invested in education and training systems. The investment supported and ensured the appropriate development of human resources along with industrialisation. Ashton, D. *et al.*, (1999), *Education and Training for Development in East Asia – the political economy of skill formation in East Asian newly industrialised economies*, Routledge: London and New York, pp. 125-126.

⁵³ Green, A. (1997), *op. cit.*, pp. 46-47.

⁵⁴ Although the state and the political elites in Singapore, Taiwan and South Korea developed different ways of applying the political strategies, all these states directed economic development and the formation of skills required in the labour market. Ashton, D. *et al.*, (1999), *op. cit.*, pp. 129-130.

⁵⁵ The comparative pace of development shows the speed of economic development in this region. For example, it took 58 years for England to double the real per capita income from 1780, 47 years for the United States from 1839, and 34 years for Japan from 1900. South Korea only took 11 years to achieve the same result from 1966. Morris, P. (1996), *Asia's Four Little Tigers: comparison of the role of education in their development*, *Comparative Education*, Vol. 32, No.1 p. 95.

⁵⁶ Morris, P. (1996), *op. cit.*, p. 99.

⁵⁷ Fagerlind, I. and Saha, L. (1989), 2nd edition, *Education and National Development - a Comparative Perspective*, Pergamon: Oxford Butterworth-Heinemann, p. 47.

⁵⁸ Ashton, D. *et al.*, (2002), *The Evolution of Education and Training Strategies in Singapore, Taiwan, South Korea: a development model of skill formation*, in *Journal of Education and Work*, Vol.15, No.1, p. 10.

⁵⁹ Morris, P. (1996), *op. cit.*, p. 104.

⁶⁰ Ashton, D. *et al.*, (1999), *ibid.*, pp. 125-126.

⁶¹ In Singapore, the state controlled the curriculum, ensuring the basic subjects, language, mathematics, science and technology. The Ministry of Trade and Industry, the Economic Development Board and the Council for Professional and Technical Education monitored the curriculum. In Taiwan, the state controlled the balance between academic and vocational education through the Council for Economic Planning and Development (CEPD). In South Korea, the state kept control of the education system and public training system. The Economic Planning Board initiated the main economic policy programmes and supported the Korean Development Institute, working with the Ministry of Education, the Ministry of Labour and the Ministry of Science and Technology. Ashton, D. *et al.*, (1999), *ibid.*, pp. 129-134.

⁶² *Ibid.*

⁶³ State-led development is not new, as it can be found earlier in Germany, Russia and China. In addition, as Johnson argues, “all states intervene in their economies for various reasons, among which are protecting national security, ensuring industrial safety, providing consumer protection, aiding the weak, promoting fairness in market transactions, preventing monopolisation and private control in free enterprise systems, securing the public’s interest in natural monopolies, achieving economies of scale, preventing excessive competition, protecting and rearing industries, distributing vital resources, protecting the environment, guaranteeing employment.” However, the uniqueness of the developmental state, that was found in the Japanese case and later adopted in other developing countries in the East Asian region, concerns “how the government intervenes and for what purposes”. Johnson, C. (1992), *MITI and the Japanese Miracle- the Growth of Industrial Policy, 1925-1975*, Stanford University Press: Stanford, California, pp. 17-21.

⁶⁴ Korean industrial policies protected the national market and led to high economic growth. For example, national policies like import restriction, and control over foreign currency and foreign investment protected industry. And the government supplied low-interest funds to targeted industries, aided the import of critical industrial equipment, resources and foreign technologies, and provided the infrastructures such as industrial parks, roads and transportation in order to cultivate national industries. Johnson, C. (1992), *op. cit.*, pp. 28-29.

⁶⁵ Ashton, D. *et al.*, (1999), *ibid.*, pp. 53-55.

⁶⁶ Ashton pointed out that education systems in the West were developed with a high degree of autonomy in relation to the economy. In general, the needs for industry and commerce were not considered when important decisions about national education systems or curricula were made. Both German governments were more directly involved in developing technical education after the Second World War. However, apart from the German cases, Western education institutions in general developed autonomously. This contrasts with the cases of some East Asian countries. Ashton, D. *et al.*, (1999), *ibid.*, p. 125.

⁶⁷ Ashton, D. *et al.*, (1999), *ibid.*, pp. 142-143.

⁶⁸ Manpower planning in Singapore was successful, as the country is small, and a single party has retained power, with a competent bureaucracy and a good communication network. However, Korea was not successful in controlling educational flows. Vocational high schools were not popular; therefore, Korea failed to achieve the target of 60 per cent of vocational

schooling. Thus, with the expansion of higher education, Korea produced a massive population of graduates in the 1980s. Japan abandoned detailed manpower planning long ago. The powerful unions in Korea and Japan made it difficult to regulate the labour market and to control educational flows. Green, A. (1998), *East Asian Skills Formation Systems and the Challenges of Globalisation*, Economic and Social Research Council, pp. 8-9.

⁶⁹ This problem with the public training system is common to industrialised countries, as the state fails to meet the detailed and changing training needs of industries. And the quality of education cannot be improved under the over-heated and examination-oriented conditions. Ashton, D. *et al.*, (1999), *op. cit.*, pp. 72-73.

⁷⁰ The quality of higher education in terms of R&D in Korean universities has lagged behind than that of other developed countries. The government therefore, has increased the support system for R&D and focused on research than teaching in higher education. KEDI, (1998), *한국 교육비전 2020: 교육전략*, [Korean Education Vision 2020: Educational Strategy], KEDI Press: Seoul, pp. 68 and 80-81.

⁷¹ Jarvis, P. (2001), *Universities and Corporate Universities*, Kogan Page, pp. 40-43. see also Machlup, F. (1962), *The Production and Distribution of Knowledge in the United States*, Princeton University Press: Princeton, New Jersey, pp. 15-22. and Yu, Hyunsook, *et al.*, (1999), *지식기반 사회에서 한국 교육정책의 방향과 과제*, [The Directions and Tasks of Korean Educational Policy in the Knowledge-based Society], KEDI: Seoul, p. 47.

⁷² For example, Kiljun Yu, one of the young Korean scholars who studied in Japan and America in the 1880s published a book, *A Record of the West*, to introduce information about Western societies, culture, history and knowledge. Yu, Kiljun, (1889), *서유견문*, [A Record of the West], revised and edited by Huh, Kyoungjin, (2004), *Suhaeminjib*: Seoul.

⁷³ Machlup explained investment in knowledge as an intermediate product. For example, the personnel with special skills and knowledge who were trained in schools or on the job, all the expenditure to produce a particular technology involved in the manufacturing of the final goods is counted as investment in knowledge. His explanation shows his flexible approach to the analysis of scientific or non-scientific knowledge and basic or applied knowledge in terms of its direct and indirect contribution to the national income. In that sense, he already understood during the 1960s the unlimited possibility of the use of knowledge in industries. Machlup, F. (1962), *The Production and Distribution of Knowledge in the United States*, Princeton University Press: Princeton, New Jersey, pp. 37-43.

⁷⁴ Definitions of knowledge are various. However, there seems to be no doubt that knowledge is increasingly important in economic development. Brown *et al.* argued that knowledge has become the key to power, as it is the very source of wealth. Therefore this leads to international competition and a battle for the control of knowledge and the means of communication. Brown, P. and Lauder, H. (1997), *Education Globalisation and Economics*, in Halsey, A.H. *et al.* (eds.), *Education - Culture Economy and Society*, Oxford University Press: Oxford, p. 174.

⁷⁵ Delanty explains that in the past, in the age of modernity (from the Enlightenment to the post-war period) knowledge was located in the university not in society. However, the democratisation of knowledge, in other words wider access to it with the rise of the democratic ethos of citizenship, challenged the consensus about the social and political order,

in which the university represented an epistemic paradigm of knowledge as the protector of the cognitive structure of the modern national state. Delanty, G. (2001), *Challenging Knowledge: The University in the Knowledge Society*, SRHE & Open University Press: Buckingham, pp. 1-2.

⁷⁶ Gibbons, M. *et al.* (1994), *The New Production of Knowledge – the Dynamics of Science and Research in Contemporary Societies*, SAGE Publication: London, Thousand Oaks, New Delhi, pp. 12-13.

⁷⁷ Gibbons, M. *et al.*, (1994), *ibid.*, pp. 17-22.

⁷⁸ Gibbons *et al.* named the new mode of knowledge as Knowledge mode 2, which has developed along with the existing knowledge, Knowledge mode 1. Gibbons, M. *et al.*, (1994), *ibid.*, pp. 2-3.

⁷⁹ Gibbons, M. *et al.*, (1994), *ibid.*, pp. 17-22.

⁸⁰ Gibbons, M. *et al.*, (1994), *ibid.*, pp. 3-4.

⁸¹ Gibbons, M. (1995), The University as an Instrument for the Development of Science and Basic Research: the Implication of mode 2 Science, in Dill, D., and Sporn, B., (eds.), *Emerging Pattern of Social Demand and University Reform: Through a Glass Darkly*, Pergamon for the IAU Press: Oxford, p. 95.

⁸² Gibbons, M. (1995), *ibid.*, p. 97.

⁸³ Jacob, M. and Hellström, T. (eds.), (2000), *The Future of Knowledge Production in the Academy*, SRHE & Open University Press: Buckingham, p.15.

⁸⁴ The homogeneity of Knowledge mode 1 limits the choice available in knowledge production. The emergence of mode 2 Knowledge production is expanding the dynamics of knowledge production. Especially, changes are noticeable in terms of participants in knowledge production; for example, team work in scientific research increased greatly during the last few decades.

⁸⁵ Gibbons *et al.* explain that mode 2 knowledge is emerging alongside the traditional disciplinary structure of science and technology, mode 1 knowledge. Neither is superior to the other, they are simply different. The difference is in the beliefs about how reliable theoretical and practical knowledge should be generated. Gibbons, M. *et al.*, (1994), *op. cit.*, pp. 13-14.

⁸⁶ Gibbons, M. *et al.*, (1994), *ibid.*, p. 19.

⁸⁷ *Ibid.*

⁸⁸ Gibbons, M. *et al.*, (1994), *ibid.*, p. 17.

⁸⁹ Jacob, M. (2000), mode 2 in Context: The Contract Researcher, the University and the Knowledge Society, in Jacob and Hellstrom (eds.), *The Future of Knowledge Production in the Academy*, SRHE & Open University Press: Buckingham, pp. 19-20.

⁹⁰ Jacob, M. (2000), *op. cit.*, p. 21.

⁹¹ Rip proposes that the discussion about mode 1 and mode 2 knowledge is merely a fashionable labelling of the existing 'big science', which implies the transformation of science and the decision-making problem about science policy around 1960. Rip, A. (2000), *Fashions, Lock-ins and the Heterogeneity of Knowledge Production*, in Jacob and Hellstrom (eds.), *The Future of Knowledge Production in the Academy*, SRHE & Open University Press: Buckingham, p. 29.

⁹² Delanty, G., (2001), *Challenging Knowledge: The University in the Knowledge Society*, SRHE & Open University Press: Buckingham, pp. 112-113.

⁹³ Terms such as 'overlooked' and 'neglected' are often used to describe post-graduate education and research in higher education in England. The Humboldtian idea quickly established the tradition of the unity of research and teaching (*Einheit von Forschung und Lehre*) in universities in the early nineteenth century. This idea was introduced into the United States and was implemented through a strongly research-oriented graduate school system with course work, seminars and advanced programmes. As English universities are characterised as collegiate and oriented to undergraduates, English post-graduate education has been shaped within this general framework. Clark, Burton R. (1995), *Places of Inquiry-Research and Advanced Education in Modern Universities*, University of California Press: Berkeley, Los Angeles, London, pp. 56-57, 19, 116-117.

⁹⁴ During the nineteenth century, the emergence of a unified German national state was delayed, while it had emerged much earlier in Britain and France. However, in spite of this relative weakness in terms of politics, the educated middle class (clerics, teachers, higher civil servants, academics and poets) in Germany gathered around universities, seeking their intellectual and political interests. Gellert, C. (1993), *The German model of Research and Advance Education*, in Clark, B.R. (ed.) *The Research Foundations of Graduate Education Germany, Britain, France, United States, Japan*, University of California Press: Berkeley, Los Angeles, Oxford, pp. 5-6.

⁹⁵ The traditional German universities did not enjoy freedom of thought and speech. However, Germans were convinced that a rational development (without political upheavals) of the state and society would be possible with the assistance of rational and knowledgeable citizens. Gellert, C. (1993), *op. cit.*, pp. 6-7.

⁹⁶ Gellert stresses the importance of academic learning and research, quoting Humboldt's own words: "General education is meant to strengthen, ennoble and direct man himself; specialist education will only provide him with skills for practical application." Gellert, C. (1993), *ibid.*, p. 7.

⁹⁷ The University of Berlin was the first place where the philosophical faculty, including arts and sciences, obtained a status formally equivalent to the old faculties of law, medicine and theology. Ben-David, J. and Zloczower, A. (1962), *Universities and Academic Systems in Modern Societies*, *European Journal of Sociology*, No.1, p. 51.

⁹⁸ As the new idea of the university was the search for truth, the relation between teachers and students changed. Students enjoyed the freedom of learning. The unity of research and teaching was ideal for professors, who searched for objective knowledge. The new principle of Berlin University was followed in the new foundations of Breslau University in 1811 and

Bonn University in 1818. Twenty of the traditional universities were dissolved between 1794 and 1818. Gellert, C. (1993), op. cit., pp. 7-8.

⁹⁹ Between the early nineteenth century and the advent of Nazism, German universities were place where British and American scientists spent some years in order to complete their studies 'with one of the renowned professors'. Ben-David, J. and Zloczower A., (1962), Universities and Academic systems in Modern Societies, *European Journal of Sociology*, No.1, p. 47. The success of German universities made them the model for other European countries. Gellert, C. (1993), op. cit., p. 10.

¹⁰⁰ Americans adopted the German model at the end of the nineteenth century, but developed it in three different ways: liberal education for the undergraduate level, specialised professional graduate schools, and research institutions in academic graduate schools. In the United States, English liberal education was strongly retained at the undergraduate level. However, American graduate education developed in two sharp layers, professional graduate schools and academic graduate education in close relation with research. Gellert, C. (1993), *ibid.*, pp. 33-35.

¹⁰¹ The quality of traditional English university education was high. English universities were small (the annual intake did not exceed about 300-500 students at each university) and selective. The tutor-student ratio was high, generally 1:8. The "Oxbridge" tradition of the residential undergraduate college system formed a distinctive university organisation. However, post-graduate education in England remained neglected compared to European countries, although research activity was accepted as an important part of academic work from the end of the Second World War. Clark, Burton R. (1995), *Places of Inquiry- Research and Advanced Education in Modern Universities*, University of California Press: Berkeley, Los Angeles, London, pp. 57-58.

¹⁰² The general quality of higher education was improving. But there was a lack of system or systematic support for research activities in Korean universities. However, the poor quality of research activities in universities became problematic, as economic development increasingly depended on advanced scientific knowledge during the 1990s. KEDI, (1998), *대학원 교육제도의 국제 비교연구: 고등교육 경쟁력 향상을 위해*, [An International Comparative Study of Graduate Education System: for a Competitive Higher Education], KEDI: Seoul, p. 150.

¹⁰³ Although the development of science and technology dates from the nineteenth century, the recent changes in capitalism after the collapse of the Soviet Union are remarkable. Giddens considers that the development of communication technology and new discovery of life science will bring new opportunities of human history, while Hutton believes that regulation, controls, trade unions and public ownership should be removed. Hutton, W. and Giddens, A. (eds.), (2000), *Global Capitalism*, The New Press: New York, pp. 4, 9-10.

¹⁰⁴ Delanty, G. (2001), op. cit., p. 113.

¹⁰⁵ Barnett, R. (2000), The University of Knowledge in an Age of Supercomplexity, in *Higher Education*, Vol.40, No.4, pp. 411-412.

¹⁰⁶ Altbach, P.G. (1998), *Comparative Higher Education: Knowledge, the University and Development*, Ablex Publishing: Westport, Connecticut • London. Barnett, R. (1990), *The*

Idea of Higher Education, SRHE & Open University Press: Buckingham. Castells, M. (2000), *The Information Age: Economy, Society and Culture Vol. 1. The Rise of the Network Society*, 2nd Edition, Blackwell Publishing: Oxford. Clark, B. R. (1994), *Places of Inquiry- Research and Advanced Education in Modern Universities*, University of California Press: Berkeley, Los Angeles, London. Clark, B.R. (ed.), (1993), *The Research Foundations of Graduate Education Germany, Britain, France, United States, Japan*, University of California Press: Berkeley, Los Angeles, Oxford. Dill, D. and Sporn, B. (eds.), (1995), *Emerging Patterns of Social Demand and University Reform: Through a Glass Darkly*, Pergamon for the IAU Press: Oxford. Halsey, A.H. et al., (eds.), (1997), *Education - Culture, Economy, Society*, Oxford University Press: Oxford. Halsey, A. H. and Trow, M. (1971), *The British Academics*, Faber and Faber: London. Halsey, A.H. Floud, J. and Anderson, C.A. (1961), *Education, Economy and Society- a Reader in the Sociology of Education*, The Free Press: New York, Collier-Macmillan: London. Machlup, F. (1962), *The Production and Distribution of Knowledge in the United States*, Princeton University Press: Princeton, New Jersey. Neave, G. (2000) *The University's Responsibilities to Society: International Perspectives*, Pergamon for the IAU Press: Oxford. Rothblatt, S. and Wittrock, B. (eds.), (1993), *The European and American University since 1800- Historical and Sociological Essays*, Cambridge University Press: Cambridge. Rothblatt, S. (1976), *The Modern University and Its Discontents –The Fate of Newman's Legacies in Britain and America*, Cambridge University Press: Cambridge. Sanderson, M. (1972), *The Universities and British Industry 1850-1970*, Routledge & Kegan Paul: London.

¹⁰⁷ Barnett, R. (1990), *The Idea of Higher Education*, SRHE & Open University Press: Buckingham.

¹⁰⁸ Gibbons, M. et al. (1994), *The New Production of Knowledge – the Dynamics of Science and Research in Contemporary Societies*, SAGE Publication: London, Thousand Oaks, New Delhi.

¹⁰⁹ Berdhal, R. (1959), *British Universities and the State*, University of California Press: Berkeley and Los Angeles, Cambridge University Press: London.

¹¹⁰ Clark, B.R. (1983), *The Higher Education System: Academic Organisation in Cross-National Perspective*, University of California Press: Los Angeles and London.

¹¹¹ Neave, G. (2000) *The University's Responsibilities to Society: International Perspectives*, Pergamon for the IAU Press: Oxford.

¹¹² Castells, M. (2000), *The Information Age: Economy, Society and Culture Vol. 1. The Rise of the Network Society*, 2nd Edition, Blackwell Publishing: Oxford.

CHAPTER THREE

HIGHER EDUCATION TRADITION AND PRESSURES FOR CHANGE: ENGLAND

The purpose of Chapter Three is to describe the changes in English university education and the relationship between universities, the state and the economy at the end of the nineteenth century.

The argument of this chapter is that the traditions of the English university and its relation with the state and the economy were under pressure from industrial development in the late nineteenth century. Emerging patterns of economic production based on new technology raised political attention to the role of English university and to the creation of new universities in industrial cities; the development of large and complex industries pressured the state and industry to renegotiate the roles of the university to fit into rapidly changing social and economic contexts.

Firstly, the narrative section of the chapter will describe how the changes in the valuation of knowledge influenced English universities and industry to redefine the role of these universities under pressure from rapid industrialisation and growing international economic competition. Secondly, it will look at how political lobbies encouraged the state to note the importance of formal education in general, and science education at the university level in particular, for industrial development. Thirdly, it will cover the development of new civic universities in industrial cities.

In the next section, this chapter will discuss the kind of knowledge which was produced and transmitted in traditional English universities.

CHOICE OF KNOWLEDGE IN ENGLISH UNIVERSITIES

This section examines the liberal education tradition and the changes in English universities during the second half of the nineteenth century.

The traditional education in old English universities was liberal. In the seventeenth century, ‘liberal education’ meant both Liberal Arts and Liberal Sciences.¹ In the early eighteenth century, scientific studies were included in the curriculum as a part of a general education in most private academies.²

However, a distinction between a scientific and a classical curriculum emerged, that held back an engagement between the university and industry.³ For example, science became more associated with practical application and therefore could be studied as a vocational subject.⁴ This practical value of science education led to the assumption that science education was suitable for artisans, which lowered the status of science.⁵ In contrast, classical education was linked to social privilege as it offered opportunities for careers not only in traditional professions but also in the City, banking and politics.⁶ The flourishing culture of the English gentry supported liberal education.⁷ The Anglican Church also encouraged education to class divisions.⁸ Therefore, during the nineteenth century, university education was about elites’ education.

Until the middle of the eighteenth century, the relatively small industries could be maintained by teaching within family workshops or through apprenticeship rather than in formal education institutions.⁹ However, teaching “on the job” could not support rapid industrialisation any longer. The increasing population, a growing labour market and plentiful skills led English entrepreneurs to underestimate the urgent need for formal science education.¹⁰ In a way, the

growing wealth of English society obscured the serious deficiency of science education for English industries.

However, there were concerns about what should be taught in the university. Voices calling for professional education and vocational training rather than liberal education increased. R.L. Edgeworth, for example, argued that “the value of all education must ultimately be decided by its utility” in his book *‘Essays on Professional Education’* published in 1809.¹¹ In spite of this new idea however, in the following year, Edward Copleston opposed Edgeworth’s idea, contending that the quality of some activities made them ends in themselves, and that the study of the classics was an end in itself and prepared a man for no particular occupation but for all of them.¹²

Such confidence in liberal education was soon criticised by leading scientists. For example, Lyon Playfair argued in his lecture to the School of Mines in 1851 that “the ready availability of cheap natural resources has been in Britain’s favour but in the future, with the wide spread of development of transport and communications systems, the race would go to the nation which commanded the greatest scientific skill.”¹³ At the end of the 1860s, Thomas Henry Huxley lobbied actively for science education.¹⁴ He pointed out that “in the past, practical men believed that the ‘rule of thumb’ methods were adequate to achieve industrial prosperity. In the future the diffusion of scientific education will be an absolutely essential condition of industrial progress.”¹⁵ Huxley emphasised the importance of technical education for artisans. George Gore also stressed the need for scientific research in his book, *‘The Scientific Basis of National Progress’*. He asserted that “by the neglect of scientific investigation we are sacrificing our welfare as a nation. Present knowledge only enables us to maintain our present state. National progress is the result of new ideas, and the chief source of new ideas is original research.”¹⁶

Despite the growing concern for science education, English universities still remained largely under the influence of the liberal arts.¹⁷ J. S. Mill and J. H. Newman supported liberal education strongly. For example, J. S. Mill presented his idea of liberal education in his inaugural address as Rector of St. Andrews in 1867, emphasising what a university is not for. He said:

University is not a place of professional education. Universities are not intended to teach the knowledge required to fit men for some special mode of gaining a livelihood. Their objects are not to make skilful lawyers and physicians or engineers, but capable and cultivated human beings.... If you make them capable and sensible men, they will make themselves capable and sensible lawyers or physicians.¹⁸

Mill was not against professional schools for law, medical study, engineering and industrial arts. However, he believed that the essence of university education should be general or liberal education that could contribute to building up individual intellectual power and transmitting knowledge and culture to the next generation.¹⁹ He was concerned that learning could be distorted when it was focused on narrow occupational needs.²⁰

Similarly, J. H. Newman believed that, “A university is a place for teaching universal knowledge; that is the essence of a University. The function of a university is teaching and the dissemination of knowledge”.²¹ Newman thought that universities should produce gentlemen with broad knowledge, with critical intelligence, moral decency and social sensitivity.²² He was not rejecting the view that university was also a place for professional education or research; however, he believed that teaching was its primary mission, rather than scholarly scientific and philosophical work.²³ Newman believed strongly that education should mean teaching liberal knowledge which cultivates the mind.²⁴

In summary, towards the end of the nineteenth century it was still generally accepted that liberal education offered the most appropriate education both for the betterment of individuals and for industrialising English society. However, signs of changes in universities were seen. For example, voices stressing the importance of scientific knowledge and technology for more complicated industrial development grew steadily. The economic wealth brought by rapid industrialisation also increased demands for university education.

This chapter now will look at how this discussion on the choice of knowledge in English universities influenced the existing roles of English universities.

ROLES OF ENGLISH UNIVERSITIES

In this section, the chapter will describe the signs of changes in the role of English universities during the second half of the nineteenth century. The progress of science education in Oxford and Cambridge and the creation of the University of London affected views on the traditional roles of English universities.

Oxford and Cambridge

Since their origin, Oxford and Cambridge had developed a unique organisation of higher learning in England.²⁵ These universities became federations of independent colleges. Each college had its own staff, students, buildings, grounds and finance. The academics were known as fellows, tutors or dons. Students were educated mainly in individual tutorials. Therefore, Oxford and Cambridge had acquired great prestige in English society.²⁶

The roles of Oxford and Cambridge in English society were distinctive in two ways. They had been firstly ‘the preserves of social aristocracy and assimilating institutions’ producing new member of the political and professional elites, as most of their graduates went into the

Church, law or academic life, and secondly places for ‘education as opposed to training’.²⁷ In addition, Oxford and Cambridge, like some other European universities, were parts of religious rather than economic life.²⁸ This unique position of the ancient universities led them to play a conservative role, resisting organisational changes in the academe.²⁹

English universities, therefore, did not particularly look for a close relationship with industry while English society went through great changes with the rise of industrial economy. Science education at higher levels took place mostly outside the university.³⁰ For example, the Royal Institution for Great Britain was the leading centre for science in England, until scientific education began to be available from various colleges in London. There were the Society of Arts (established in 1745, becoming the Royal Society of Arts in 1908), the British Association for the Advancement of Science (from 1831), the Royal College of Chemistry (founded in 1845) and the Government School of Mines (which later in 1963 became a part of the Imperial College of Science and Technology) and the School of Applied Science (both of them were founded in 1851).³¹

By the nineteenth century, the lack of science education in English universities was holding back English industry in many ways.³² For example, English industry had to rely on German and Swiss chemists; otherwise English entrepreneurs appointed unqualified Englishmen. Any Englishman who wanted a chemical education before the rise of civic universities had to go to the Continent.³³

There were attempts to bring changes in Oxford and Cambridge by individual academics who understood the importance of science education in the face of growing industrialisation. In Oxford, for example, Charles Daubeny, William Buckland and Henry Wentworth Acland were interested in teaching chemistry and geology before 1850. Daubeny built his own laboratory at

Magdalen which influenced the creation of other laboratories, such as Balliol in 1855, Christ Church in 1866 and Queen's in 1900.³⁴ Daubeny and Acland also created the School of Natural Science in 1850.³⁵ Their successor, Sir Benjamin Brodie, was successful in research on purifying graphite.³⁶ However, after Daubeny and Brodie there was no more notable scientific research. The real obstacle was that William Odling (who held the chair of the department of chemistry for forty years, between 1872 and 1912) had no interest in scientific research. Physics was in a similar situation. Oxford did not set up an engineering chair nor department until 1905.³⁷

The university ran courses in engineering and mining, and offered diplomas, enabling the holders to take a Birmingham B.Sc. degree in two years. C.F. Jenkin became the first Oxford engineering professor in 1908. The number of students rose to around thirty a year. In 1912, the engineering and mining courses were enhanced, covering a wider range of subjects including turbines, sanitary engineering, lubrication, and refrigeration as well as the normal civil engineering subjects.

Overall, Oxford was lacking in people who were dedicated to increase the provision of scientific scholarships and fellowships, so that Oxford did almost nothing to supply qualified graduates for industry at the end of the nineteenth century.³⁸ It was only at the beginning of the twentieth century that Oxford was able to make any progress in science education. Thus its prime role was still limited to the reproduction of social, political and academic elites, in this case narrowly defined traditional elites such as the clergy, lawyers, doctors and politicians.

Cambridge had better conditions for the development of science education than Oxford, as it had more academics with scientific interests. The first change was made in mathematics. Sir George Airy, Dr. William Whewell and the Rev. G. Peacock changed mathematical studies as they created a place for mathematics within an enlarged definition of a 'liberal' education.³⁹

They were influenced by Whewell's book, *'On the Principles of English University Education'*, which was published in 1837. Whewell argued that "the virtue of mathematical study was not that it led to increased knowledge or that it was useful as an instrument for other purposes, it rather lay in its power to provide intellectual discipline."⁴⁰

This change in mathematics affected other intellectual developments in fields like mathematical philosophy, engineering, economics and physics.⁴¹ The success of mathematical study also supported the development of better environments for scientific research, and key reforms in science during the 1850s and the 1860s.⁴² For instance, there had been no laboratories at Cambridge except a building, on the site of the old Botanic Garden, which served as a lecture room for chemistry, physics and botany. In 1865, the University spent £30,000 on rooms and a museum, and additional new laboratories for natural science, which were built later.

With the improved facilities, Stuart, Ewing and Hopkinson led the development of Cambridge science. The Natural Science Tripos was started in 1848, and was opened to undergraduates in 1861.⁴³ George Liveing was appointed to teach practical laboratory chemistry for the first time in the university in the same year. It was an important development for students as they could be awarded BA degrees in science subjects.

A new department of engineering was created in 1875, and James Stuart became its chairperson.⁴⁴ He understood the importance of practical experience in a commercial workshop for engineering training from his previous experience in a Crewe workshop. He invested his own money to provide practical workshop training in his course, and helped his students to develop careers in different areas of engineering.⁴⁵ Stuart's efforts influenced other universities, for example University College, London in 1878, Mason College in 1882, Bristol in 1883, Firth College in 1885, Leeds in 1886 and Manchester and Liverpool before the end of the 1880s.

Stuart's successor, James Alfred Ewing, who was also influenced by the Scottish scientific engineering tradition of Rankine, Tait, and Jenkin, brought Cambridge engineering close to industry, stressing that industry should be supported by science rather than crafts.⁴⁶ Ewing also introduced the new Mechanical Science Tripos, as Stuart had failed to do earlier. In the first year of the examination, 1894, seventy-four undergraduates read engineering (2.68 per cent of all university students). When Ewing left the university in 1903, there were 226 engineering students (8.34 per cent of the total). His successor, Bertram Hopkinson continued to build close links with industry.⁴⁷ Thus, in engineering, Cambridge had established firm bonds with scientific industry by the early twentieth century.

Overall, Cambridge made an important progress in science education and scientific research along with growing student numbers and improving research facilities.⁴⁸ Between 1863 and 1900, museums for zoology, botany and mineralogy were built. The Cavendish laboratory for physics was opened in 1871. New chemical laboratories were added in 1887. More chemical workshops and new engineering laboratories were built in 1894. These developments slowly increased the flow of Cambridge graduates into business. For example, Cambridge graduates who went into business increased from 3.9 percent during the years 1752 - 1886 to 7 percent during the years 1850 – 1899.⁴⁹ This achievement was better than that of Oxford graduates, but was still too small to serve the national industries adequately.

The development of science education in Oxbridge during the second half of the nineteenth century was not significant, but there were signs of changes in the number of students who developed careers in industries and businesses. For example, from 1891, a new type of science scholarship, the growing size of businesses and the growth of Limited Companies attracted more students.⁵⁰ As a result, the quantitative growth of new occupational groups

(scientific professions and business clerks) was faster than that of the three classic professions: the Church, law and medicine.⁵¹

Thus the progress in science education in Oxford and Cambridge was slow during the nineteenth century. However, individual efforts to improve science education in Oxbridge increased the number of graduates who developed business careers. The real change in English universities in terms of science education, however, was made by the creation of university colleges in London.

The University of London

The foundation of the two original colleges of the University of London in the late 1820s was one of the first attempts to introduce practical education into universities in England.⁵² Thomas Campbell who was impressed by the work of new universities in Berlin, Breslau and Bonn, developed the idea of establishing a university in London.⁵³ When Brougham introduced a Bill of Incorporation to the House of Commons in 1825, and other progressive thinkers, like Brougham and Birkbeck, established London University, which received its first students in 1828. When the Church failed to prevent this, it established a rival institution, King's College, with the same function but under Anglican control. Nonetheless, these two colleges had much in common; therefore the two colleges were combined and were given a charter as the University of London in 1836. This was the first non-sectarian university in England, with the power to grant degrees in Arts, Law and Medicine.⁵⁴ By 1851, twenty-nine general colleges and nearly sixty medical colleges were associated with the University of London.⁵⁵

London University had distinctive achievements in industrial science from the 1880s. For example, the works on bleaches and detergents of Sir Herbert Jackson at King's College was very successful. Jackson ran courses on laundry chemistry, alkalis, soaps, and starches for the

National Laundry Association.⁵⁶ He also analysed German laundry products (soaps for example) and produced a new soap at a third of the price. Later he became a consultant on the deteriorating stone work of Canterbury Cathedral. In the 1870s and 1880s, Charles Graham at University College developed brewing science, running courses on bread making, soap, glass and cement for London manufacturers. Sir William Ramsay joined University College in 1887 and continued his own industrial projects, the “Williamson steam boiler” for ships, the Landore Steel Company and his chemical work at Willesden.⁵⁷ Ramsay’s work contributed to the improvement of the quality of both technical and practical studies in chemistry, and upgraded chemistry to high level science.⁵⁸ A good range of research work, for example, Jackson’s and Ramsay’s radium research, Imperial College’s work on dyes and TB drug, and Fleming’s work with Marconi and Swan promoted further research on industrial science for practical use.⁵⁹

Thus the establishment of the University of London was an important change in English university education. It was the first non-sectarian university in England, and contributed to the advancement of science education and scientific research. Especially, the efforts to pursue practical studies based on the model of Berlin University encouraged the development of science education in other universities. Although education in science and technology at university level was still insufficient to serve the newly created need for rapid industrialisation, it was helpful in promoting changes in views on the role of higher education.

In the following two sections, this chapter will examine changes in the university’s relationships with the state and industry.

THE STATE AND UNIVERSITIES

The English government was not concerned with the changing features of industry and the economic competition based on technological innovations in world industry during the nineteenth century. The government did not take responsibility as the main provider of formal education.⁶⁰ Therefore, state support for formal education was minimal. For example, in the 1830s, the first government grants were given to religious educational societies.⁶¹ In 1862, the government introduced the ‘payment by results’ project in order to encourage elementary school attendance by the lower middle class.⁶² This project helped to set standards of attainment for children of various ages and to regulate the payment for teachers, which was decided by the number of children who met the required standards.

However, despite the poor state’s support for education, Victorians were still confident about their skill formation in industry. In the Church of England, some believed that “it would be safer for both the government and the religion of the country to let the lower class remain in the state of ignorance in which nature has originally placed them.”⁶³ Therefore the state’s support for formal education in England was much less than that of other European countries.

Nevertheless, there were individuals who tried to build a formal education and training system for scientific knowledge and skills from the middle of the nineteenth century. For example, Lyon Playfair, Thomas Henry Huxley and George Gore urged the need for change in the government’s attitudes to such education.

Between 1870 and 1900 there were important developments in education. Especially, the 1870 Act introduced state grants to elementary schools, regardless of their religious connection.⁶⁴ The Act was an important step towards the national provision of compulsory education.

Subsequently, compulsory attendance up to the age of ten was introduced in 1880, and elementary school fees were abolished in 1896.⁶⁵

In 1872, 948 English elementary schools received grants for science teaching, and 36,783 pupils were receiving instruction in science.⁶⁶ As there was no state-supported secondary education system, lower-class children could rarely get any more than a simple primary education.⁶⁷ The opportunities for higher learning for those children were even lower than for secondary education. Boys in the middle and the upper classes generally had access to some formal secondary education.⁶⁸ However, the traditional secondary education institutions, the grammar and public schools, could not meet the growing demand for secondary education for the middle and upper classes in this period.

Some lobbying groups pressured the government to provide state support for formal and higher technological education at the national level. However, in spite of the government's growing awareness, the expansion of undergraduate courses in science and technology had to wait for an adequate supply of students from secondary schools. Thus there was no appropriate government's support for industrial growth through science and technology education, unlike other European countries, at the time when the country needed such support most at the end of the nineteenth century.

In summary, actual improvements in the government's support for formal education were made only after the 1870s, as there was neither an adequate supply of pupils trained in schools nor an adequate demand from industrialists for graduates. Thus the role of the state in English higher education during the latter half of the nineteenth century was very limited, as the government paid little attention to what was taught and produced in universities. In most cases, it was individual academics in universities who brought changes in science education in

universities during the nineteenth century. However, even the small progress made in this period led some to reconsider the appropriate role of the state in the development of higher education.

In the next section, this chapter will examine the links between universities and industries.

ECONOMIC LINKS BETWEEN UNIVERSITIES AND INDUSTRIES

In this section, this chapter will analyse the pressure on the relationships between the university and English industries.

The Industrial Revolution of the eighteenth and the early nineteenth century turned England into the ‘workshop of the world’; this was achieved by the high quality of natural resources and individual skills. The early entrepreneurs, such as Crompton, Smeaton, Bramah and Maudslay, advanced English industries between 1820 and 1870 in particular.⁶⁹ The 1851 International Exhibition in London showed the supremacy of British industry. It was praised as “Britain’s tribute to herself, to her own industrial achievement, to her pride in her mechanised monopoly of world industry”.⁷⁰ English industrial products in the all four categories of the Exhibition; raw materials, machinery, manufactured goods, and fine arts and sculpture, won awards.⁷¹

However, the next International Exhibition, held in Paris in 1867, was totally different. The supremacy of British industries and British monopoly in the international market had disappeared. The exhibition clearly showed the increasing foreign competition which used up-to-date machines and techniques.⁷² Especially, big countries like Germany and United States among the newly industrialised countries produced industrial and agricultural surpluses more effectively

for the world market, based on greater resources and much larger productive capacities than Britain.⁷³

In addition to these embarrassing results of the Exhibition, the industrial growth rate also indicated the relative failure of British industry from the middle of the nineteenth century. Table 3.1 indicates the serious problems of U.K. industry compared with those in Germany and the United States.⁷⁴

Table 3.1, Annual Rates of Industrial Growth

	U.K.	Germany	USA	World
1860-1880	2.4	2.7	4.3	3.2
1880-1900	1.7	5.3	4.5	4.0
1900-1913	2.2	4.4	5.2	4.2

Source: Sanderson, M. (1972), *The Universities and British Industry 1850 – 1970*, Routledge & Kegan Paul: London, p. 9.

The Table shows the slow growth of industry in UK, while industries in Germany and the United States achieved substantial growth in the same period. Especially, Britain’s industrial growth rates during the last two decades of the nineteenth century were seriously weaker. The levels of manufacturing exports also indicated the relative decline of British economy. For example, manufactured goods produced in Britain dropped from 41 per cent of world output in 1880 to only 29.9 per cent in 1913, while German production increased from 19.9 per cent to 26.5 per cent during the same period.⁷⁵ This meant that Britain was lagging behind its rivals at the turn of the twentieth century.

Among the possible reasons for this relative economic failure, the relationship of English industries to education is often pointed out. Earlier industrial advance in England had been achieved by the excellent craftsmanship that was inherited as an industrial tradition, rather than

by any formal education system.⁷⁶ Lyon Playfair, who was an international jury member at both the 1851 and 1867 Exhibitions, commented that there were good systems of vocational education for the masters and managers of factories and workshops in France, Prussia, Austria, Belgium and Switzerland, but not in England.⁷⁷ It was believed that efficient schooling systems and technical training led to the economic success of other countries.⁷⁸

The lack of relevant formal education was surely holding back English industries; meanwhile other European countries were experiencing innovations in industry, the so-called Second Industrial Revolution, towards the end of nineteenth century.⁷⁹ It is noticeable that the innovative features of the Second Industrial Revolution were based on science, unlike the existing English tradition of industry. However, English industry, failing to adopt new techniques of production, overlooked the importance of research and investment in laboratories and technicians. In relation to the negligent attitude to science education in England, Sir William Armstrong said in the early 1870s that “there is almost a total absence of scientific knowledge amongst persons who are engaged in manufactures, mines, agriculture and so on”.⁸⁰ Professor Carey Foster of London University also pointed out that “few manufacturing establishments except telegraph companies consider that there is any advantage of having service persons with a thorough knowledge of physics.”⁸¹

Apart from the lack of employees with formal education, the unenthusiastic attitude of English entrepreneurs also caused the relatively poor development of English industries.⁸² They were reluctant to adopt new technology for new products, and were also reluctant to learn the new managerial skills needed for more dynamic industrial organisation. This was partly related to the fact that English entrepreneurs were in the second or third generation during the period from 1879 to 1900, and they tended to be distracted from business life by social life. These

inadequate attitudes of entrepreneurs also appeared in their patterns of employment.⁸³ The Victorian entrepreneurs, who relied on individual craftsmanship, did not comprehend the importance of managing their workforces efficiently. They employed few scientists, technologists or supervisors and continued to employ most of their managers from among those who had their practical experience in workshops.⁸⁴ At the critical time of when newly emerging industries were expanding, English entrepreneurs continued to invest in traditional industries in a traditional way.

Overall, the economic links between English universities and industries were generally inadequate to support industrial development at the end of the nineteenth century. English industry based on a high quality of craftsmanship had contributed to the rise of the first Industrial Revolution. Later, English industry failed to keep up with the increasing competition with other European countries. Both English entrepreneurs and the universities failed to deal with the new features of technical innovation and changing patterns of economic production.

As the older universities failed to adapt themselves to changing economic environments, attempts were made to offer science and technology education in new universities. In the next section, this chapter will look at the creation of new universities in the growing industrial cities.

NEW UNIVERSITIES

This section describes the creation of new universities.

Local entrepreneurs in large industrial cities such as Manchester, Liverpool, Leeds, Sheffield, Birmingham and Bristol initiated the creation of new higher education institutions, as traditional universities failed to support further industrial development.

The population of Britain in 1815 was about thirteen million but it doubled by 1871.⁸⁵ As the influence of industrial development spread across Britain, the population began to concentrate in cities. For example, during the first thirty years of the nineteenth century, Birmingham and Sheffield doubled in size and Liverpool, Leeds, Manchester and Glasgow more than doubled.

The existing universities could provide neither qualified graduates nor appropriate knowledge for growing industries when industries needed them the most. As industry could not rely upon the ancient universities, local entrepreneurs in industrial cities in England initiated the establishment of new kinds of higher education institutions that could support local industries by producing economic elites for their cities.

Manchester became the second city of England between 1800 and 1850. Manchester was built on cotton, one of the greatest industries in mid-Victorian Britain.⁸⁶ As a city with many factories, it had a massive proletariat and a small middle class. However, the city still needed a skilled workforce for its many machinery and engineering firms.

By the 1840s, Manchester had many wealthy merchants, like John Owens, who had interests in the city.⁸⁷ When Owen died in 1846, he left £100,000 to found a new college, which would teach new scientific knowledge and technology as well as the usual knowledge taught in traditional universities. The early trustees were mostly distinguished traders of Manchester and Lancashire, representing substantial wealth and position and with a wide range of political and religious persuasions: George Faulkner, the fine spinner; Samuel Alcock, the calico manufacturer; Alderman Watkins, the drysalter; Mark Philips, a merchant; Alderman Kay and J.B. Smith, cotton merchants; and Richard Cobden, a print manufacturer.⁸⁸

Owens College, the first civic college in Manchester was opened in March 1851. The college could offer high standards of education in a relatively traditional range of subjects. Henry Roscoe, a professor of chemistry at Owens College, made a substantial contribution as he set himself to remedy 'the serious harm' which would come from the separation of colleges from universities.⁸⁹ With the active co-operation of Thomas Ashton and other cotton traders, Roscoe secured two new Acts of Parliament in 1870 and 1871. Roscoe and his colleagues pursued basic research, united the existing Medical College and Owens College in new buildings and worked steadily to meet local industrial and commercial needs and to get full university status.⁹⁰ Under Roscoe, Owens College began to make important progress in scientific research which influenced the development of new colleges in other provincial towns.

Liverpool was also one of the growing cities of nineteenth-century England, possessing great wealth and a significant cultural and intellectual tradition.⁹¹ The slave trade and the growing trade with the West Indies led the port to expand. The city's fortunes were made by its key position as an entry port for Northern England. The city was mainly commercial rather than industrial, though shipbuilding and heavy chemical industry were located nearby. The cosmopolitan and commercial character of the city helped to develop its intellectual culture and produced cultivated elites like the Gladstone, Rathbone and Holt. The members of cultural and economic elites worked together in a variety of organisations and advanced the provision of local education. In the beginning, their interest and funds had gone into the secondary education sector: and later they turned their attention to the creation of a college.⁹²

A series of town meetings was held in 1877 and 1878 to discuss the necessity of forming a university college in Liverpool.⁹³ The founders had a clear ideas about the new college from the beginning and defined the purpose of college as "to provide such instruction in all branches of a

liberal education as would enable residents in the town and neighbourhood to qualify for degrees in arts, science and other subjects at any of the universities granting degrees to non-resident students and at the same time to give such technical education as would be of immediate service in professional and commercial life.”⁹⁴ Appeals for funds for the new college were successful, and large contributions were gathered.

The founders had raised £100,000 by the time of incorporation in 1881, and raised another £30,000 when the college joined the Victoria University in 1883.⁹⁵ After Liverpool became a part of the Victoria federation (Victoria Trio: Manchester, Liverpool and Leeds) the flow of beneficence continued. By 1886, the public of Liverpool had given £150,000 and the city cooperation £20,000 for the college. In 1888, Sir Henry Tate gave £16,000 for the library, and the engineering laboratories were built at a cost of £15,000 by the donation of Sir Andrew Walker (a brewer of the local ale) and donors of the Walker Art Gallery in 1889. Sir John Bruner donated £10,000 in 1891, and the chemical laboratories were built with a donation by Gossage in 1894. All these contributions placed Liverpool in a powerful position to break away from the Victoria federation as a separate university in 1903.

Leeds was another fast-growing industrial and commercial city of nineteenth century England. Leeds, which was little more than a market town in 1800, became one of Yorkshire’s main cities by 1870.⁹⁶ Textiles, flax, wool, and engineering works made Leeds a community of the new entrepreneurial and industrial middle classes.

The middle-class leaders of the city recognised the intellectual needs of the community. The Philosophical and Literary Society became a meeting place for many of the Leeds elites. It was successful in uniting many members of the middle classes in support for the creation of Mechanical Institutes to educate the working class. Another important voluntary association was

the Yorkshire Board of Education, which promoted education in various subjects. The Cambridge extension movement, with powerful local support, brought some higher education to Leeds. Therefore, by the middle of the 1870s, funding, potential students and interest in education were all available in the city.⁹⁷

Leeds became the third partner of the Victoria University trio. Initially, Leeds University began as a reaction to the fears of foreign competition engendered by the visit of certain Leeds businessmen to the Exhibition of 1867. The proposals of Obadiah Nussey, a textile manufacturer, and James Kiston, a locomotive engineer, led to the formation of the Yorkshire College of Science in Leeds to provide scientific education linking with local industry. The scheme gained some early financial support from Sir Andrew Fairburn, the engineer, the Duke of Devonshire, Sir Titus Salt, Messrs Beckett and Company, the bankers, the Low Moor Iron Company, and Hargreave and Nussey, each of whom gave £1,000. The modesty of the support owed something to the position of Leeds within the West Riding. Leeds was relatively weaker than Manchester or Liverpool. For example, Manchester was a metropolitan city dominating the surrounding area, while Leeds did not have the same character within its own region, which contained several other independent towns, notably Bradford.⁹⁸

It was not until after the First World War that Leeds received a really massive six-figure donation from Frank Parkinson and Lord Brotherton that shaped much of the physical form of the university as it is today.⁹⁹ Leeds followed many features of Manchester University, such as its curricula, constitutional and financial arrangement, and relied on the prestige of the federal form, gaining something of the reflected glory of Manchester and Liverpool. However, Leeds achieved excellence in one or two industrial areas, like textiles and leather, and maintained its technological specialisation in these fields.¹⁰⁰

There were also similar involvements of industrialists in Sheffield, Birmingham Bristol, Newcastle and Nottingham. As the cases of Manchester, Liverpool and Leeds show, there were considerable local variations in the support for setting up new civic universities. Sometimes there was a member of one local industry providing the money and expecting some return in the form of science for that industry; in other cases there were just one or two families which initiated the idea of a new university.

These civic universities achieved a remarkable success even in their early days, as they became a leading source of innovation for industry, as Oxford and Cambridge never were. Many advances in lubrication, colliery pumps, vanadium steels, chrome leather, gas fires, sparking plugs and radio tuning were due to the hard work of professors in new universities. Products like cheese, soap, beer and engines were improved by their work. More importantly, the local support of the universities improved the practice of firms.

But these new universities lacked the wealth, cultural independence, social status and political connections to make substantial changes to the dominant culture of the traditional universities at the end of the nineteenth century.¹⁰¹ For example, most of the teaching in these universities was on a part-time basis (according to the annual returns made by these universities to the Treasury in 1901, 45 per cent of the student population also were on part-time courses) and the majority of courses were below degree level (when the first return was made in 1893, only a handful of students had completed degree courses).¹⁰² The low level was related to the facts that only a small proportion of the recruits came from newly reformed grammar schools, and that the majority of new students were registered in part-time classes at the elementary level in many colleges until new higher-grade schools were available in their cities.¹⁰³

The changes in industry and the growing international competition pressured local entrepreneurs to establish new universities in their own industrial cities in order to provide appropriate education. New universities had to wait for the improvement of quality in secondary education to offer effective science and technical education. However, the creation of new universities in industrial cities was a crucial step forward, as it renegotiated the ideal shape of higher education and offered technical and vocational education programmes to meet local industrial needs.

CONCLUSION

This chapter has examined the English higher education tradition and the relationship between English universities, the state and the economy in the late nineteenth century. The chapter emphasised the distinctive boundary in the traditional relationships and the growing pressure for change in these relationships.

In Chapter Two, the thesis proposed that the application of the Tower Model might assist in constructing a comparative interpretation of changes in English higher education. The key characteristics of the Tower Model are:

- i. The most important form of knowledge in higher education is liberal knowledge. The choice of knowledge in higher education should not be affected by direct political interests or economic pressure.
- ii. Higher education's important role is the reproduction of social and political elites. Elites in this model include traditionally and narrowly defined professions, such as those of political elites, religious leaders and academics.
- iii. The state's role in higher education is very small. Higher education remains isolated from the public, as access to higher learning is limited to the ruling class.

- iv. Higher education stays away from the direct pressure from the state and the economy, as higher education maintains a high degree of institutional autonomy and academic freedom in teaching and learning activities.

This model then can be used as a tool for both for summary and interpretation, focusing on four themes: knowledge in higher education, roles of higher education, the state and the economy.

Knowledge in higher education

Liberal knowledge was the most valuable form of knowledge in Oxford and Cambridge. However, there were growing attention to scientific knowledge and technology during the second half of the nineteenth century. Oxford and Cambridge began to embrace new courses, such as industrial chemistry and engineering, in their curricula and they built new science laboratories. The creation of the University of London also increased the amount of practical research work. For example, in the 1880s, research on industrial chemistry at King's College, and University College's research on glass and cement for London manufacturers were successful. The growing demands for advanced knowledge encouraged politicians to recognise the importance of technological education at higher levels, and to discuss the kind of knowledge, which should be taught and produced in the university. However, individual academics' and entrepreneurs' efforts to make higher education suitable for industrial changes were still too weak to bring substantial changes in old universities and the liberal tradition. Therefore liberal knowledge was still accepted as the most prestigious form of knowledge at the end of the nineteenth century.

Roles of higher education

English universities maintained most of their traditional role in the reproduction of religious and political elites throughout the nineteenth century. The majority of Cambridge and

Oxford graduates went into the traditional elite professions: the Church, law, medicine and academic careers. The improvement of science education in Cambridge and Oxford and the establishment of the University of London influenced the growth in the number of students who developed careers in industries and businesses. However, as traditional universities failed to support further industrial development, local entrepreneurs in industrial cities initiated the establishment of new universities that could teach appropriate knowledge for industry.

The state

The state played only a small role in the growth of English universities. This relative absence of political interest delayed the development of national provision for higher education. As most political debates focused on the formation of formal education at primary level between the 1870 Act and 1896 (free primary education), it was mostly local entrepreneurs who led the expansion of higher education by creating new institutions - Owens College in Manchester and University College in Liverpool, and other new colleges in Birmingham, Bristol, Leeds, Newcastle, Nottingham and Sheffield at the end of the nineteenth century.

The economy

The early prosperity of British industry was based on the supremacy of craftsmanship. Cambridge and Oxford contributed neither to the rise of industrial development nor to the increase of economic competence in English industries. Although the new universities – London and civic universities - improved the relations between the university and industry by providing improved science and technical courses, they were not enough to meet industrial demands. Nonetheless the creation of new universities was important in the development of English higher education, as these new institutions could meet the secular demands for higher education raised by the growth of population in industrial cities. Their influence on the existing universities was

still minimal at the end of the nineteenth century, but the new universities showed that universities could contribute to local industrial development by offering technical education and practical working relations with industries.

Overall, the application of the Tower Model was useful in understanding the higher education tradition and the increasing pressure for change in traditional liberal higher education and its relationships with the state and the economy at the end of the nineteenth century. However, the long-standing tradition was strong, exemplifying this model.

Korean higher education, with its different cultural and political background, experienced many political and economic upheavals at the end of the nineteenth century. In the following chapter, this thesis will discuss these changes in higher education in Korea in comparison with the English experiences.

ENDNOTES FOR CHAPTER THREE

¹ Rothblatt, S. (1976), *Tradition and Change in Liberal Education, An Essay in History and Culture*, Faber and Faber: London, p. 13.

² Cotgrove, S.F. (1958), *Technical Education and Social Change*, George Allen & Unwin Ltd.: London, p. 16.

³ Ibid.

⁴ Ibid.

⁵ Ashby, E. (1958), *Technology and the Academics: An Essay on Universities and the Scientific Revolution*, Macmillan: London; St.Martin's Press: New York, p. 31.

⁶ Sanderson, M. (1972), *The Universities and British Industry, 1850-1970*, Routledge & Kegan Paul: London, p. 1.

⁷ During the seventeenth and the eighteenth centuries, English culture was formed under the influence of Continental Europe. Liberal education as a science of right living became the prime issue in shaping the moral norms of Georgian English society. By the late eighteenth century, the meaning of 'liberal' became more associated with social independence. In spite of the high cost of education, liberal education was opened to men who wished to have a free mind, and who sought a higher standard of human behaviour. Rothblatt, S. (1976), *ibid.*, pp. 14-16 and 23-25.

⁸ The Anglican tradition was one of the contributing factors in the slow development of national education system in England. For example, the comment of the Bishop of London in 1803, the policy of the National Anglican Society in 1805 and the School Inquiry Commission illustrated the same view on education: that the education of the lower class should fit them for their destined manual work. Cotgrove, S.F. (1958), *op. cit.*, p.17-19.

⁹ The people who created the Industrial Revolution, such as Telford, Brindley, George Stephenson, Gott, the Darbys, Boulton, Crompton, Arkwright, Wedgewood and Watt, were not educated in universities. Sanderson, M. (1972), *ibid.*, pp. 1-2.

¹⁰ Argles, M. (1964), *South Kensington to Robbins: an Account of English Technical and Scientific Education since 1851*, Longmans: London, p. 15.

¹¹ The radical Benthamite utilitarians, like Sydney Smith, a former Oxford fellow, supported Edgeworth's idea on professional education. Sanderson, M. (1991), *Education, Economic Change and Society in England 1780-1870*, Second Edition, Macmillan, p. 49.

¹² Ibid.

¹³ Roderick, G. and Stephens, M. (eds.), (1981), *Scientific and Technical Education in Early Industrial Britain*, University of Nottingham: Nottingham, p. 6.

¹⁴ Roderick, G. and Stephen, M. (1982), *British Malaise: Industrial Performance Education & Training in Britain today*, Falmer Press: London, p. 13.

¹⁵ Roderick, G. and Stephen, M. (1982), *ibid.*, p. 13.

¹⁶ Roderick, G. and Stephen, M. (1982), *ibid.*, p. 14.

¹⁷ Ashby points out that the respect for science was not strong enough to bring changes in curriculum in English universities. Ashby, E. (1974), *Adapting Universities to a Technological Society*, Jossey-Bass: San Francisco and London, p. 13.

¹⁸ Sanderson, M. (1972), *The Universities and British Industry 1850 -1970*. Routledge & Kegan Paul: London, p. 5. see also Rothblatt, S. (1968), *The Revolution of Dons, Cambridge and Society in Victorian England*. Cambridge University Press: Cambridge, p. 248.

¹⁹ Garforth explains that for Mill the aim of a university was providing ‘general’ or ‘liberal’ education. Mill said that “the very cornerstone of an education intended to form great minds and must be the recognition of the principle, that the object is to call for the greatest possible quantity of intellectual power, and to inspire the intense love of truth”. Garforth, F. W. (1980), *Educative Democracy: John Stuart Mill on Education in Society*, Oxford University Press, p. 171.

²⁰ According to Mill’s definition of liberal education, qualities of mind and character come first and occupational skills second. Rothblatt, S. (1968), *op. cit.*, p. 248.

²¹ Rothblatt, S. (1997), *The Modern University and Its Discontents – The Fate of Newman’s Legacies in Britain and America*, Cambridge University Press: Cambridge, p. 13.

²² Newman distinguished clearly between liberal education for gentlemen in universities and the university’s integrated but independent relation with the church. He further explained that education for the gentlemen should not be confused with education for Christians. The reason was that the person of real moral virtue (as opposed to a person possessing some kind of expedient earthly virtue) can only be produced through the teachings, faith, and practice of the Roman Catholic Church. Newman, therefore, believed that the purpose of the university should be a liberal education, which he defined as knowledge ‘which stands on its own pretensions, independent of sequel, and refuses to be informed by any end.’ Turner, F. M. (ed.), (1996), *The Idea of a University –John Henry Newman*, Yale University Press: New Haven, CT, p. xv.

²³ The ideas of the graduate school and research were never strong in English culture, although there had been external pressure on the ancient universities to promote professional education and scholarly work. The creation of learned societies with museums, botanical gardens, libraries and institutions was pursued in Victorian English society. Rothblatt, S., (1997), *op. cit.*, pp. 15-16.

²⁴ According to Newman “knowledge meant something intellectual, something which grasps what it perceives through the senses; something which takes a view of things; which sees more than the senses convey; which reasons upon what it sees, and while it sees; which invests it with

an idea". His clear belief in knowledge emphasised liberal rather than professional education in universities. Turner, F. M. (1996), *ibid.*, pp. 84-85.

²⁵ Since the establishment of Oxford and Cambridge, the main concern of the two universities was educating the clergy for the national church. Oxford and Cambridge began to take sons of the gentry from the sixteenth century. Until the new universities of London and Durham were founded in the middle of the nineteenth century, Oxford and Cambridge were the only two universities in England. Nonetheless, the overall size of the two universities remained small at the end of the nineteenth century. The English collegiate system was developed as a unique higher learning culture based on liberal education for gentlemen, while Continental Europe achieved the development of research in science and a department system, and professional schools were developed in America. Clark, B. (1995), *Places of Inquiry – Research and Advanced Education in Modern Universities*, University of California Press Berkeley: Los Angeles and London, pp. 57-58.

²⁶ Halsey, A. H. (1958), *British University and Intellectual Life*, Vol. 12, *University Quarterly*, p. 144.

²⁷ Halsey, A. H. (1958), *ibid.*, p. 145.

²⁸ Halsey, A. H. and Trow, M. (1971), *The British Academics*, Faber and Faber: London, p. 34.

²⁹ Oxford and Cambridge achieved a firm position in English society before new demands for wider education opportunities, especially for educated scientists and technologists, were raised. Halsey, A. H. and Trow, M. (1971), *ibid.*, p. 68.

³⁰ Sanderson, M. (1972), *The Universities and British Industry 1850-1970*, Routledge & Kegan Paul: London, p. 3.

³¹ Argles, M. (1964), *South Kensington to Robbins: an Account of English Technical and Scientific Education since 1851*, Longmans: London, p. 9.

³² Sanderson, M. (1972), *op. cit.*, pp. 18-19.

³³ The most common way was going to Germany to study at one of the great centres, like Gissen or Heidelberg. Most of the English professors of chemistry went through similar experiences until the end of nineteenth century. Sanderson, M. (1972), *ibid.*, p. 19.

³⁴ Sanderson, M. (1972), *ibid.*, pp. 35-36.

³⁵ Daubeney and Acland attempted to make science an examinable subject. As a result, the School of Natural Science was created in 1850 and the first examination was held in 1853. However, there were still problems to tackle in the examination system, such as the qualifications for examinations and awards in relation with scholarships, and building university laboratories. Nonetheless, Daubeney successfully established a foundation for science education. Sanderson, M. (1972).*ibid.*, p. 36.

³⁶ William Odling never considered active research as a part of his professorial duties. Oxford physics was even worse, as Professor Clifton who was entirely opposed to research, held the chair for fifty years. Sanderson, M. (1972).ibid., p. 38.

³⁷ Sanderson, M. (1972), ibid., p. 39.

³⁸ Sanderson , M. (1972), ibid., p. 59.

³⁹ Roderick, G. W. and Stephens, M. D. (1976) Scientific Studies at Oxford and Cambridge 1850-1914, *British Journal of Educational Studies*. Vol.24. No.1. pp. 49-50.

⁴⁰ Ibid.

⁴¹ Sanderson, M. (1972), op. cit., p. 46.

⁴² Roderick, G. W. and Stephen, M. D. (1976), ibid., p. 52.

⁴³ In general, Cambridge established little relation with industry. George Living was the first man who taught practical laboratory chemistry in the university, in 1848. Unlike his class, his own research was limited to spectroscopy, without any interest in industrial firms. Sanderson, M. (1972), ibid., p. 42.

⁴⁴ Sanderson, M. (1972), ibid., p. 43.

⁴⁵ Four out of seven students in his 1877 class, and six out of eighteen in between 1878-1879, became engineers; many others (another five in 1878-1879) developed allied professions. Sanderson, M. (1972), ibid., pp. 43-44.

⁴⁶ Sanderson, M. (1972), ibid. pp. 44 –45.

⁴⁷ Sanderson, M. (1972), ibid., p. 45.

⁴⁸ Roderick, G. W. and Stephens, M. D. (1976), ibid., p. 57.

⁴⁹ The career developments of Oxford graduates between 1872 and 1886 were: Church: 64.2%, law: 8.7%, academic: 5% and business: 0.6%. Between 1850 and 1899, the career choices of graduates were widened. For example, 38 per cent of Cambridge graduates went into the Church, 14 per cent into law, 12 per cent into teaching, 7 per cent into landowning, 6 per cent into administration, 5 per cent into business and 2 per cent into banking. Sanderson, M. (1972), ibid., pp. 50-54.

⁵⁰ Sanderson, M. (1972), ibid., pp. 26-27.

⁵¹ Graduates were encouraged to consider entering industry rather than the overcrowded old professions. Overall, commercial occupations grew faster than professional ones, as Table 3.2 shows. Sanderson, M. (1972), ibid., pp. 28-29.

Table 3.2

	1871	1911
Professional occupation	204,000	413,000
Commercial occupation	212,000	739,000

Sanderson, M. (1972), *The Universities and British Industry 1850-1970*, p. 29.

⁵² However, the idea of this new university brought opposition even before it was opened. For example, Henry Brougham, a supporter for 'useful knowledge' tried to initiate technical education at University College, faced resistance from natural philosophers like Thomas Graham. Sanderson, M. (1972), *The Universities and British Industry 1850-1970*, Routledge & Kegan Paul: London, pp. 2-3.

⁵³ Simmons, J. (1958), *New Universities*, Leicester University Press, pp. 13-14.

⁵⁴ But the battle over the Church's influence in London did not end there. For example, Thomas Arnold resigned from the University Senate in 1839 in protest against its refusal to make examination in scripture compulsory for undergraduates. Nevertheless, the new University in London was an essential step in breaking the Anglican grip on university studies by providing an examining body and a centre for the affiliation of provincial institutions. Ibid.

⁵⁵ In 1858, a new charter dispensed with the requirement of attendance at an approved institution, and the university degrees were opened to all fee-payers. Through its external degree, it played a vital role in enabling the civic colleges to transform themselves gradually into universities in their own right. The proposal to start a teaching university of London resulted in the University of London Act of 1898. Following this, University College became incorporated into the University in 1905, and King's in 1908. In 1907, Imperial College was formed by royal charter out of the Royal College of Science, the Royal School of Mines and the Central Technical College of the City and Guilds. Also from 1907 the East London (Queen Mary) College became a school of the University. By 1914 the University consisted of three incorporated colleges: University, King's and King's College for Women, and thirty-one schools including Imperial, East London, Bedford, Westfield, Royal Holloway, and LSE, and twenty-five other institutions dealing with agriculture, medicine, theology, and teacher training. Sanderson, M. (1972), op. cit., p. 106.

⁵⁶ Sanderson, M. (1972), op. cit., p. 107.

⁵⁷ Ibid.

⁵⁸ In 1904, Ramsay won the Nobel Prize and was also elected as the President of the Society of the Chemical Industry in recognition of his scientific services to industry. Sanderson, M. (1972), ibid., p. 108.

⁵⁹ Sanderson, M. (1972), ibid., p. 111.

⁶⁰ The first state contribution to elementary education was £20,000 for school buildings in 1833; however, the government still did not accept responsibility for education. Cruickshank, M.

(1963), *Church and State in English Education 1870 to the Present Day*, Macmillan & Co Ltd: London, p. 3.

⁶¹ As industries matured, education became a necessary qualification for full membership in an industrial society. The English government made the first official donation to education by recognizing the need for education. Roebuck, J. (1973), *The Making of Modern English Society from 1850*. Routledge and Kegan Paul: London, p. 54.

⁶² Ibid.

⁶³ Cotgrove, S.F. (1958), *Technical Education and Social Change*, George Allen & Unwin Ltd.: London, p. 17.

⁶⁴ Cruickshank, M. (1963), op. cit., pp. 36-37.

⁶⁵ Ibid.

⁶⁶ Ashby, E. (1961), op. cit., p. 468.

⁶⁷ Charitable institutions for lower-class children failed to provide relevant education for those who were in desperate need of basic and practical training and information. Roebuck, J. (1973), *ibid.*, p. 57.

⁶⁸ Roebuck, J. (1973), *ibid.*, p. 58.

⁶⁹ Roderick, G. and Stephens, M. (eds.), (1981), *Where Did We Go Wrong? Industrial Performance, Education and the Economy in Victorian Britain*, Palmer Press, p. 6.

⁷⁰ Roebuck, J. (1973), op. cit., p. 17.

⁷¹ Although there were some outstanding achievements from other countries, for example the chemical dyes of Prussia, and the silks and velvet of France, international juries awarded prizes to British manufactures in a hundred categories. Boyd, W. and King, E. J. (1975), *The History of Western Education*, Adam & Charles Black: London, p. 379.

⁷² The world economy became more sophisticated and its machinery became more complicated. International competition in the world market was tough, as newly industrialised countries emerged as new competitors. Sir. E. Ashby (1961), *On Universities and Scientific Revolution*, in Halsey, A.H. Floud, J. Anderson, C.A. (eds.), *Education Economy and Society*, the Free Press: New York, p. 470.

⁷³ In fact, Germany and United States were more effective in large-scale production. Roebuck, J. (1973), *ibid.*, pp. 38-39.

⁷⁴ Sanderson, M. (1972), *The Universities and British Industry 1850-1970*, Routledge & Kegan Paul: London, p. 9.

⁷⁵ These figures mean that between 1880 and 1914 Britain lost £360 million in annual manufacturing exports on account of competition, a loss of about 18 per cent of the actual value of her manufacturing exports in 1913, while Germany gained £330 million. It was pointed out that the home of the Industrial Revolution had become 'the sick man of Europe'. The criticism of British industry continued. After the Second World War, the English found that the national products of Germany and the United States increased during the war by more than two fold, while the national product of England merely improved. The term 'British sickness' or 'British disease' was introduced to refer to economic failure or the inability to equal the industrial productivity of competitors. Roderick, G. and Stephens, M. (1982), *The British Malaise: Industrial Performance, Education & Training in Britain Today*, the Falmer Press: Barcombe, p. 3.

⁷⁶ Because of this unique combination of craftsmanship and the supremacy of individualism, English industry tended to reject the state interference. Roderick, G. and Stephens, M. (eds.), (1981), p. 6.

⁷⁷ Sir E. Ashby (1961), *ibid.*, p. 470.

⁷⁸ For example, in France, after the French Revolution the state directed the development of the *Ecoles Polytechnique*, various technical colleges and a secondary education system. In Germany, Humboldt's humanistic Gymnasias were the centres of steady growth in German education - leading to universities and research, middle schools, technical schools and training schemes for the less favoured classes. These comparable patterns of elementary and secondary education in many continental countries were state-sponsored or state-initiated. Boyd, W. and King, E. J. (1975), *ibid.*, p. 380.

⁷⁹ Landes called their innovations in industry in European countries the "Second Industrial Revolution". The distinctive feature of the Second Industrial Revolution was its strong relation with science. Roderick, G. and Stephens, M. (eds.), (1981), *Where Did We Go Wrong? Industry Education & Economy of Victorian Britain*, Palmer Press, pp. 233-235.

⁸⁰ Sanderson, M. (1972), *The Universities and British Industry 1850-1970*, Routledge & Kegan Paul: London, p. 17.

⁸¹ *Ibid.*

⁸² Roderick, G. and Stephens, M. (eds.), (1981), p. 6.

⁸³ Roderick, G. and Stephens, M. (eds.), (1981), *ibid.*, pp. 237-238.

⁸⁴ The poor employment of college graduates in industries was still found prior to the First World War. New civic universities also failed to produce qualified manpower for the industry because of the low interests in science and technical studies, lack of finance, and the poor quality of entrants. Roderick, G. and Stephens, M. (eds.), (1981), p. 243.

⁸⁵ Berdahl, R. O. (1959), *British Universities and the State*, University of California Press: Los Angeles; Cambridge University: Cambridge, p. 21.

⁸⁶ Jones, D. R. (1988), *The Origin of Civic Universities: Manchester, Leeds & Liverpool*, Routledge: London, pp. 47-48.

⁸⁷ Jones, D. R. (1988), *ibid.*, p. 51.

⁸⁸ Sanderson, M. (1972), p. 62.

⁸⁹ Armytage, W. H. G. (1977), *Civic Universities*, Arno Press: New York, p. 224.

⁹⁰ Simmons, J. (1958), *New Universities*, Leicester University Press, pp. 23-24.

⁹¹ Jones, D. R. (1988), *The Origin of Civic Universities: Manchester, Leeds & Liverpool*, Routledge: London, p. 58.

⁹² Jones, D. R. (1988), *ibid.*, p. 59.

⁹³ *Ibid.*, p. 61.

⁹⁴ *Ibid.*

⁹⁵ Sanderson, M. (1972), *op. cit.*, p. 63.

⁹⁶ Jones, D. R. (1988). *op. cit.*, p. 55.

⁹⁷ *Ibid.*

⁹⁸ Sanderson, M. (1972), *op. cit.*, p. 66.

⁹⁹ Sanderson, M. (1972), *ibid.*, p. 67

¹⁰⁰ *Ibid.*

¹⁰¹ Lowe, R. (1987), Structural Changes in English Higher Education, 1870-1920, in Muller, D. K., Ringer, F. and Simon, B. (eds.), *The Rise of Modern Educational System: Structural Change and Social Reproduction, 1870-1920*, Cambridge University Press, pp. 171-172.

¹⁰² *Ibid.*

¹⁰³ Lowe, R. (1990), Education for Industry: the History of Higher Education in England, in England, in Wright, P.W.G. (ed.), *Industry and Higher Education*, Open University Press, p. 13.

CHAPTER FOUR

HIGHER EDUCATION TRADITION AND PRESSURES FOR CHANGE: KOREA

The purpose of Chapter Four is to describe the changes in the Korean higher education tradition and the relationships between Korean higher education, the state and the economy at the turn of the twentieth century. This chapter is a counterpart to Chapter Three, as it analyses the transformation of the higher education tradition in Korea. However, the chapter deals with a longer period of time than Chapter Three (which focused on the last two decades of nineteenth-century England), as the experience of Japanese colonisation (1910-1945) affected the indigenous development of a new higher education system and a modern economy.

The narrative section of the chapter will look first at changes in the role of *Sungkyunkwan* and the creation of modern education institutions under the growing influences from the West during the last two decades of the nineteenth century. Secondly, it will describe how the declining national security at the turn of the twentieth century affected the fall of Confucian knowledge established in *Sungkyunkwan*. Thirdly, it will examine higher education's relation with the state (including the colonial government) and the economy in the transition to a modern society.

The argument of Chapter Four is that the Korean higher education tradition diminished under the growing pressure of foreign influence. The external pressure raised political attention to new kind of knowledge and created modern education institutions at the end of the nineteenth century. However, the collapse of the higher education tradition in Korea led to a dependency on Western knowledge transmitted to Korea. This altered the primary role of higher education and shifted its position in a rapidly changing Korean society.

CHOICE OF KNOWLEDGE IN *SUNGKYUNKWAN*

In this section, this chapter will describe Confucian higher education tradition and its change under the impact of Western knowledge in higher education (*Sungkyunkwan*) at the end of the nineteenth century.

Korea has a long history of state-led formal education.¹ *Taehak* (the Great School in 372) and *Kukhak* (the State School in 682) were the earliest forms of native higher education institution.² The higher education tradition was developed during the *Koryo* Dynasty (918-1392) and King *Kongmin* named the institution as *Sungkyunkwan* in 1363.³ During the *Koryo* Dynasty, Chu Hsi's influences on Confucian studies in *Sungkyunkwan* grew.⁴ The Confucian Classics (the Canon of Confucian Study – 'Four Letters and Three Books') was the core study at *Sungkyunkwan*.⁵

During the *Chosun* Dynasty (1392-1910), the inherited Confucian education tradition in *Sungkyunkwan* (the only state higher education institution) were refined and sophisticated, along with the development of a hierarchical class society based on very strict Confucian moral principles - loyalty, filial piety and courtesy.⁶ These moralistic Confucian principles formed the foundation of the family, society and the state.⁷ The Confucian education system regenerated these Confucian moral principles effectively, as children were taught appropriate behaviours and manners and to understand their future roles and responsibilities as members of a family, society and the state.⁸ For example, the primary education institution, *Sôdang*, was available nationwide.⁹ The basic education in reading and writing in *Sôdang* was an important educational opportunity for the public, who had limited access to higher learning. But most of all, *Sôdang* contributed to the diffusion of essential Confucian principles.

The intermediary level of education was available at *Sabu Hakdang* (the national institution called *Sahak* for short) in Seoul and at *Hanggyo*(national) and *Suwon*(private) in the provinces. The education for sons of the aristocracy at these institutions led to the higher level of study in *Sungkyunkwan* or to preparation for the State Examination.¹⁰ The ideal Confucian scholar in *Chosun* society meant firstly a successful achiever at the State Examination, and hence serving the government as a scholar mandarin, and secondary a lifelong devotion to study in order to be a “sage” (Gunja, the wise man in Korean term).¹¹ Ideally, if the wise scholars served the government and the King properly, they could build a good state, and then the good state would bring the prosperity and peace for the people. Therefore, Confucian education was a process of learning one’s inherited personal role in society, for example as a farmer or a scholar, and the appropriate social relationships.

Thus, until the late nineteenth century, Confucian knowledge was the most respected knowledge in *Sungkyunkwan*. The embodiment of Confucian ideas in *Chosun* society as both the ruling ideology of the state and its educational philosophy worked successfully in *Chosun* society as a whole, defining the relationship between the people and the state.

However, the *Chosun* government found it increasingly difficult to maintain the social harmony that had been preserved for centuries. The belief in Confucian education began to fall rapidly, as the government faced coercive foreign interruptions especially from Japan, during the last quarter of the nineteenth century. The government understood the need to educate people with new knowledge, and to modernise the government system in order to generate national wealth and military power.¹² The old military system, with the deficit of advanced technology, and the economic backwardness of the nation were crucial weaknesses of Korea at the end of

the nineteenth century. Therefore some Confucian scholars raised attention to practical knowledge.

Practical knowledge, known as *Silhak* (pragmatic study) emerged early in the seventeenth century. The first distinguished scholar who supported the idea was Yoo Hyungwon (1622-1673).¹³ Scholarly interests in *Silhak* were passed from teachers to students and flourished during the eighteenth century under the influences of the bibliographical study of Chinese classics, scientific thinking from the West and the introduction of Roman Catholicism.¹⁴ Two different schools of *Silhak* were developed, and flourished during the eighteenth century.¹⁵ The major interests of *Silhak* schools focused on the betterment of the real life of the public; therefore, scholars were in favour of reform movements in political, economic and educational systems.

Especially for education, pragmatic scholars agreed that the state examination system should be reformed in order to select a future national elite based on meritocracy, and should promote practical knowledge.¹⁶ Their ideas on education can be summarised that scholars should:¹⁷

- Seek utilitarian knowledge that can be applied to the governance of the country,
- Study history, geography and mathematics that can contribute to national development,
- Learn useful system and knowledge from the Western countries, and
- Study bibliographical methods.

The development of *Silhak* in eighteenth century Korea was a turning point for some Confucian scholars, as they attempted to re-direct Confucian study, which had moved far away from real life. However, their actual contribution to economic and social development during the eighteenth century was very limited, as they stayed outside the main political circle.¹⁸ However, the falling belief in Confucian knowledge

during the late nineteenth century allowed the *Silhak* scholars to revive pragmatic studies under the growing influences from the West, and led to the modernisation movements, establishing new schools that could teach practical knowledge and skills.

Once a consensus was made on the urgent need of education on practical knowledge, positive progress was made. For example, the government published for the first time a modern text book, in August 1895, and additional twenty eight books on Korean language and literature, geography, education, history, Chinese, mathematics and law were published in the following two years.¹⁹ After this, new books and information from the West were flooded into Korea mainly through Japan.²⁰ Therefore, the choice of knowledge in education began to shift from Confucian knowledge to scientific and practical Western knowledge.

Thus, it can be summarised that Confucian knowledge was traditionally the most valuable knowledge in *Sungkyunkwan*. However, the belief in Confucian knowledge and education fell during the late nineteenth century, and the deteriorating national security shifted scholarly attention from Confucian knowledge to practical knowledge from the West.

In the next section, the role of *Sungkyunkwan* and newly created institutions in the 1880s will be analysed.

ROLES OF KOREAN HIGHER EDUCATION

This section describes education in *Sungkyunkwan* and in new modern institutions in order to examine the role of higher education in nineteenth century Korea.

Students who completed secondary-level education (at state or private institutions) and passed the low-level state examination were admitted to

Sungkyunkwan. The annual intakes were around 150 to 200.²¹ Students were under strict rules, that applied both to the whole education programmes and to their lives in the *Sungkyunkwan* dormitory.²² The core curriculum was reading the Confucian classics, creative writing and learning different kinds of calligraphies. The students were examined regularly, and the results were recorded.²³ Any distinctive achievement by students was reported to the King. Pupils at *Sungkyunkwan* stayed generally for four to seven years, to pass the high-level state examination (*Gagu*).²⁴ The King and high-ranking scholars visited *Sungkyunkwan* and gave lectures, encouraging students' study.²⁵

In the beginning, *Sungkyunkwana* had a two-school system, the Confucian School and the Technical School. Later, these two schools were developed as a two-tier system with separate management and education programmes. Confucian study became the primary educational programme of *Sungkyunkwan*, and technical studies in ten subjects (military study, history, astrology, geomancy (*Funshui*), accounting, chemistry, medical study, language and law) were supervised by each government department.²⁶

The government appointed scholar mandarins as teachers and administrators of the institution.²⁷ The choice of knowledge made by scholar mandarins in the central government (the political power) and in *Sungkyunkwan* (the cultural power) influenced the formation of the dominant academic tradition, which in turn determined the direction of the government policies.²⁸ Therefore the primary roles of *Sungkyunkwan* were the reproduction of the future political elites of scholar mandarins with Confucian knowledge and supporting Confucian ideas as the national governing philosophy.²⁹

Thus, *Sungkyunkwan* had similar responsibilities to those of the ancient English universities, as it reproduced the social and political elites. However, the role of *Sungkyunkwan* was challenged at the end of the nineteenth century.

As the belief in Confucian knowledge diminished, the role of *Sungkyunkwan* as the centre of Confucian study weakened. The increasing foreign military attacks on Korea raised public interest in the enlightenment idea which was believed to improve national power.³⁰ The government's foreign policy also began to change. Before 1876, the government maintained a closed foreign policy, "*WiJung ChukSa*" - reforming the government but rejecting foreign intervention.³¹ Instead of this, the government introduced a new foreign policy, "*Dongdo Suki*" - Eastern philosophy and Western practice.³² As the *Dongdo Suki* policy stressed practical benefits of the nation, it influenced changes in the governing structure and school education.

Firstly, the traditional government system, the *Yechungbu* and six departments, were replaced by the Ministry of General Affairs, *Chongrikimuamun* and six departments in January 1881. The government also set up a modern army, *Byulkikun*, with modern arms.³³ The modernisation and strengthening of the national military power were considered as the most urgent tasks for the government necessary to protect the nation against the foreign military power.

Secondly, the government dispatched two groups of envoys to Japan and China to learn and gather information about modern government systems, modernised Army and military facilities, and new factories.³⁴ The first group, *SinsaYouramdan*, was sent to Japan in early 1881 to inspect the modern systems of the Japanese government, the Army, the customs, arsenals and other factories.³⁵ The second group (twenty-eight students), *Youngsunsu*, was sent to China to study modern technologies of machinery, mechanics and gunpowder plants.³⁶ When the groups returned, many of

them became teachers in science and technology or worked for the creation of the first modern ordnance factory using steam engines in Korea.³⁷

The government's open-door policy therefore brought positive influences on the development of modern education in the 1880s. A substantial number of new schools were created.

The *Chosun* government established new schools, *Dongmunhak*, and *TongByun* School. *Dongmunhak*, the first foreign language school, was created in November 1882.³⁸ In the first year, forty students were selected and taught English, Japanese, and administration skills needed for foreign affairs. Later, in September 1886, the school was expanded and re-named as *Eukyoung Kongwon*, the Royal English School.³⁹ Students were selected and educated in two groups according to their previous educational backgrounds. Foreign teachers were employed to teach subjects such as, mathematics, science, history and politics. Students were tested monthly and evaluated by end of year examinations. Most of the graduates became teachers, government officers and interpreters, playing important roles in the modernisation of the governing structure and the education system.⁴⁰

The *TongByun* School (English Language School) was also established under the Ministry of Trade and Foreign Affairs, in March 1883.⁴¹ The course was one year long, and English was the main subject. Other subjects like history, geography, politics and law were also taught. The idea of the school was initiated by Kim Okkyun, but the government played a critical role in its creation.⁴²

Local scholars also created new schools to meet local needs. The *Wonsan* School was established in an open port town in the north of Korea, in 1883.⁴³ The town people and local civil servants raised funds together, and transformed an old *Sôdang* into a new modern school.⁴⁴ Fifty students for liberal art courses and two

hundred students for technical and military studies were selected in the first year. Students were educated in compulsory subjects: mathematics and physics, and technical subjects: machinery, agriculture, sericulture, mining and military studies, according to their speciality. The *Wonsan* School was influential in the creation of other new schools, as it was the first modern school developed from an existing local *Sôdang*. It was the local people who understood the needs of train in foreign language and new knowledge in order to contribute to local commerce and business. Therefore the *Wonsan* school became a model for local schools.

The American Christian missions contributed to the development of modern school education in Korea.⁴⁵ They offered mainly education and medical services to Koreans.⁴⁶ H. N. Allen established the first public hospital, *Chechungwon*, (later called *Kwangheawon*) in April 1885.⁴⁷ A year later, in 1886, Allen started the first medical education in *Kwangheawon*.⁴⁸ In 1890, *Kwanghaewon* was expanded as a modern medical college, teaching mathematics, geography and biology as well as foreign languages and Bible studies. *Kwangheawon* became the Severance Medical School and was renamed again as Yonsei Medical School.⁴⁹

H.G. Underwood established a nursery for young children in May 1886, and began to teach English, Chinese ideographs and the Bible.⁵⁰ In the 1890s there were about twenty missionary schools all around the country. Thus, the creation of missionary schools contributed to the expansion of educational opportunities, especially for girls and lower-class children.

More modern schools (teacher training schools, language schools and vocational schools) were opened in the 1890s. For example, *Hansung* Teacher Training School was established in 1894 and opened in May 1895.⁵¹ By 1905, 195 students had completed the course, and eighty-four per cent of the graduates (164)

became teachers in public schools.⁵² Japanese language schools were opened in Seoul in 1891 and in Inchon in 1895 to meet the increasing demands for Japanese by the growing trades with Japan.⁵³ Other language schools for English (1894), Chinese (1891), French (1896) and German (1891) were also established.⁵⁴ In addition to the main language study, mathematics, geography and office skills were taught in these schools. A military school was opened in 1896, and a medical school (1899) and a law school (1895) were also opened.⁵⁵ Vocational schools for mining, business and agriculture were created.⁵⁶

As it has been shown, the government played active roles in offering modern education, in the 1890s in particular. However, the government struggled to ensure a continuing supply of teachers and financial support for new schools under the growing Japanese political intervention. Despite these political and financial difficulties, the progress in the development of modern schools was encouraging. New schools offered different levels of education to wider groups of people. These schools produced new kinds of elites with practical knowledge in a short period of time. Most of the graduates found their careers in the government's offices; only seven per cent went into commerce and banking.⁵⁷

Thus it can be summarised that the role of *Sungkyunkwan* had been the reproduction of socio-political elites, a role similar to that of ancient English universities. However, when traditional elites failed to provide the national security against the growing foreign powers, the decline of *Sungkyunkwan* was accelerated. Instead new modern institutions began to produce new kinds of elites. These changes reflected the changing socio-political expectations of higher education at the end of the nineteenth century.

Despite the difficulties in comparing the two countries (as Wilkinson points out, “the comparison between East and West should obviously not be pressed too far”⁵⁸), the Korean tradition focused on the reproduction of the dominant academic culture and socio-political elites. Although education in *Sungkyunkwan* was provided by the state, the role of the *Sungkyunkwan* in traditional Korean society was similar to that of the old English universities in terms of its belief in liberal knowledge and its primary role in society. Thus, both England and Korea experienced substantial changes in traditional higher education; English universities maintained the higher education tradition while expanding their roles to meet the economic needs of industrialising English society, while the Korean higher education tradition collapsed and was replaced by a new one based on Western models. The Korean case shows the importance of the role of the state: there were more political negotiation between maintaining the tradition and adaptation in meeting newly emerging demands for higher education. Interestingly, however the instability caused by rapid political and social change in Korea later became a critical lesson for determined national development.

In the next section, this chapter will describe the role of the state in the development of higher education at the turn of the twentieth century.

THE ROLE OF THE STATE IN HIGHER EDUCATION

In this section, the chapter describes the role of the state in Korean higher education. Firstly, it will examine the government’s efforts to reform for *Sungkyunkwan* at the end of the nineteenth century. Secondly, the chapter will

examine the Japanese colonial government's policies on Korean higher education, which influenced the development of modern higher education in Korea.

The *Chosun* Dynasty strengthened Confucian ideas as the state's ruling philosophy instead of Buddhism. This was partly because the fall of the *Koryo* Dynasty was due to the strong political power of the aristocracy (who believed in Buddhism) and Buddhist monks, and the relatively weak political power of the royal regime.⁵⁹ Then the *Chosun* Dynasty developed a powerful and centralised governing system from the beginning.

Confucian ideas stress the importance of education. Therefore, the state played a key role in the development and the management of *Sungkyunkwan*. The *Chosun* government established carefully organised rules and regulations for *Sungkyunkwan*,⁶⁰ and recorded them in both *Kyounkuk Daejun*, (the Great Book of Laws of the state) and the school regulations of *Sungkyunkwan*.⁶¹ These allowed the government a tight control on the selection of students, the curriculum and evaluation, which led to the development of *Sungkyunkwan* as the centre of Confucian study and education for future government bureaucrats (scholar-mandarins).

However, the growth of private institutions brought a relative decline of state institution from time to time.⁶² For example, *Sungkyunkwan* was not always successful in recruiting new students. From the middle of the nineteenth century, the government sometimes attempted to reform it in order to restore the prestige of the state institution.⁶³ The first attempt to reform *Sungkyunkwan* was made in September 1869. The government altered the process of selecting students and the evaluation system, but the reform was not completed as domestic political upheavals and foreign attacks distracted the government's attention.⁶⁴

The second reform came in July 1887, in an attempt to save the declining Sungkyunkwan. A new department, *KyoungHakWon* was established in *Sungkyunkwan* to attract new students.⁶⁵ However, such a small modification did not bring fundamental changes in the education.

Japanese political intervention in the domestic affairs of Korea grew. The *Yoonyangho* Incidents⁶⁶ in September 1875 forced the *Chosun* government to conclude the Kangwhado Treaty in 1876.⁶⁷ In May 1894, Japan used the growing peasant upheavals as an excuse and sent Japanese military to Korea to put down the upheavals by force.⁶⁸ Then Japan began to interfere even more in the domestic affairs in Korea. In July, Japan formed a new cabinet and appointed Kim Hong-jib as a new minister of General Affairs.⁶⁹ In January 1895, Japan initiated a national reform, the *Kabo* Reform and introduced a modern governing system. The Reform introduced new laws for education and established a new department of education, *Hakbu*.⁷⁰

The *Kabo* reform introduced substantial changes in *Sungkyunkwan* during July and August in 1895.⁷¹ The period of study was reduced to three years, and modern subjects: history, geography and mathematics were added to the main Confucian study. The age range for entrance was widened, from 20 to 40 to 20 to 50.

Despite continuing efforts, *Sungkyunkwan* was not transform into a modern education institution and failed to lead the modernisation of the country. However, the reform influenced changes in legal and systematic foundation for national education system, although the Japanese-led reform was ended due to the intervention of Russia.⁷²

After its victory in the Russia-Japanese War in 1905, Japan increased its political power in Korea.⁷³ With the tacit agreement of international society, Japan

concluded the *Ulsa* Treaty and obtained preferential political interests in Korea in 1905, and established a colonial government office, *Tong-gam Bu*, in Seoul.⁷⁴

From the beginning, Japan used education as an effective tool for controlling Korean society. The *Tong-gam Bu* announced the Private School Regulation in 1908 that stipulated government approval of all private schools.⁷⁵ This enabled Japan to control educational activities in Korea. All the efforts to educate Koreans at private schools and evening classes were put under strict Japanese surveillance.⁷⁶ Educational opportunities for Koreans were restricted. The minimum of education needed to introduce the Japanese language and culture was implemented to promote faithful citizenship to the Japanese Emperor and cut off any other intellectual and personal educational activities.

Thus it can be summarised that ever since Confucian ideas of education were introduced to ancient Korean society, the state had played a leading role in the development of higher education. However, as the national power diminished during the late nineteenth century, the state's attempts to develop *Sungkyunkwan* as a modern institution failed. The closing down of *Sungkyunkwan* by the colonial government brought a collapse of the Korean higher education tradition. The arrival of the colonial government also stopped the development of modern school education.

From 1910, Japan began a full-scale colonial policy. In August 1911, the colonial government announced the Korean Education Regulation, which restructured the education system.⁷⁷ "Simplicity and practicality" were the main principles for Korean education policy. Japan reduced in years of schooling, and more practical than general subjects were taught in schools. Japan further developed a series of Education Regulations during the colonial period, to control the provision of Korean education. First of all, Japan created a dual education system by the separation of Korean

education institutions from Japanese ones, and transformed the Korean institutions into vocational training institution, lowering the level of education programmes.⁷⁸ These measures altered them to control the educational opportunities of Koreans and the curriculum of Korean colleges effectively at the same time.

Thus Japan reshaped the Korean higher education system from the early years of the colonial period. The simplified and vocation-oriented higher education for Koreans was designed as a part of the “Japanisation” of Korea.

Only a few young Koreans were able to get a lower level of higher education and were recruited as junior civil servants of the colonial government. However, in spring 1919, the nation-wide Independence Movement alarmed the Japanese and influenced Japanese colonial educational policies thereafter.⁷⁹ Japan allowed the creation of a few new vocational colleges for Koreans in a way of controlling the growing educational demands from Koreans. However, Japan restricted university education for Koreans, as higher education was a particular concern for Japan to prevent any development of political activities.⁸⁰

Instead, Japan opened a two-year foundation course at *KyounSung* Imperial University in 1924, and later created faculties of medical and law studies in 1926.⁸¹ After that, the colonial government delayed opening of the science and engineering departments by 1941. The Head Officer of Education, Nagano, made a speech, which excused the delay:⁸²

The aim of the medical department is to meet the increasing need to produce doctors and nurses. The reason that we could not establish departments of science and technology is only due to the lack of finance. We should have department of law because it is clear that many Korean students wished to study law. More than one-third of the Korean students in Japan enrolled in law studies. We do not want to disappoint Korean students.

In any case, it was difficult in practice for Koreans to enter the university by meeting the entrance qualification for the university.⁸³ There were no available secondary schools that awarded the qualification required for university entrance in Korea. Table 4.1 shows the numbers of students who were registered in higher education institutions during the colonial period.

Table 4.1 Number of Students in Higher Education Institutions

Year	College			Foundation Course			KyoungSung Imperial Uni.		
	Koreans	Japanese	Total	Koreans	Japanese	Total	Koreans	Japanese	Total
1912		14	14						
1917	693	206	899						
1922	952	453	1385						
1924				44	124	168			
1927				104	204	308	89	226	315
1932	1755	1332	3087	110	214	324	190	389	579
1937	2521	1718	4239	165	296	461	154	353	507
1942	3909	2638	6547	201	442	643	365	422	787
1943	4054	3025	7079	200	497	697	335	444	779

Source: KEDI., (1997), *한국 근대 학교교육 100 년사 연구(2): 일제시대의 학교교육*, [A Study of the History of Modern Education during Japanese Rule], KEDI: Seoul, p. 41.

Table 4.1 shows that most of the Korean students were at Colleges, and the majority of students in *Kyungsung* Imperial University were mainly young Japanese living in Korea. Korean students who could benefit from university education were very fewer than Japanese students. It was only after 1932 that the number of Korean students in the university increased.

The Third Korean Education Regulation in 1938 turned the colonial educational policy into a new agenda.⁸⁴ Koreans were renamed in Japanese and were allowed to go to the same school as Japanese students. These changes implied that pro-Japanese Koreans (who were qualified to be Japanese citizens) were able to be educated with Japanese, at the same schools and in the Japanese language.

The new regulation allowed the creation of new public and private colleges.⁸⁵ They were *KyoungSung* Mining College in 1939, *Busan* Fisheries College in 1941,

MyungRyun College in 1937, *KyoungSung* Women's Medical College and *DaeDong* Technical College in 1938, and *SookMyung* Women's Junior College in 1939. However, *SoongSil* College in PyoungYang (the central city of the north of Korea) was closed due to an 'anti-worship protest'. In 1941, a new department of science and engineering in *KyoungSung* Imperial University was opened.

By the year 1943, there were 28 colleges that provided vocational courses in technology, agriculture, fishery and home economics.⁸⁶ Although Japan accepted a partial provision of higher education for Koreans, the colonial education policies did not change, as Japan intended to maintain cheap Korean labour and the Korean agricultural economy.⁸⁷ Accordingly there were no particular concerns for the development of higher education for Koreans or economic development.

Thus, throughout the period, the role of the state in the development of higher education was important. Confucian ideas had encouraged the state to be responsible for the educational services of the nation. During the last two decades of the nineteenth century, the state also played a major role in the reform of *Sungkyunkwan* and the creation of new institutions. However, the fall of the *Chosun* Dynasty and the arrival of Japanese colonial government led to a collapse of the Korean higher education tradition. The tight control by the colonial government frustrated the indigenous effort to modernise the Korean higher education system. Japan allowed only a minimum education, to introduce the Japanese language and culture in order to teach faithful citizenship to the Japanese Empire, and reshaped Korean higher education to subordinate it to the Japanese education system. Especially during the colonial government, the state's influences on higher education were very much oriented towards control and restraint, which is different from working as the provider of higher learning, discerning the ideal state of Confucian ideas.

Finally, in the next section, this chapter will discuss the links between Korean higher education and the economy.

ECONOMIC LINKS BETWEEN HIGHER EDUCATION AND INDUSTRY

In this section, this chapter will describe the economy of traditional Korean society and its relation with higher education at the turn of the twentieth century.

There are not many official records available for the economic status of Korea before 1910. This was a pre-statistics period, as the *Chosun* Dynasty did not collect nation-wide economic information.⁸⁸ Only fragmentary information and statistics were recorded in family accounting books and village offices. Therefore this chapter illustrates the country's overall picture of the economic state from the information on population change, and the price changes for land and rice. The lack of available information reflects the primitive economic status of Korea compared with growing industrialisation in England at the same period.

The traditional Korean society still relied heavily on agriculture at the end of the nineteenth century.⁸⁹ According to an accounting book of one family, (the Moon family in the south-west province), which was recorded from 1740, the family paid out wages in rice, linen and cotton by the end of the nineteenth century, despite the introduction of coins from 1753.⁹⁰ Only after the *Kabo* Reform in 1894, the local and central government made payments by entirely in coins. Thus the agriculture economy in traditional Korean society remained as a non-market and self-sufficient economy at the end of the nineteenth century.

In addition, there were many signs of economic decline in the nineteenth century. The population fell from 7,900,000 in 1814 to 6,470,000 in 1850, and the

volume of trade with China and Japan decreased.⁹¹ For example, the silk trade from China to Japan died out around 1730, and the exports of ginseng to Japan decreased as the Japanese began to produce it themselves. The national holdings of silver decreased from 100 million *nang* (one *nang* is 37.5g) in 1742, to 43 million *nang* in 1782 and to 20 million *nang* in 1837. There were also records of frequent closures of international and local markets. For example, in the south west province, the number of local markets, which was opened regularly, was reduced from 216 in 1770 to 188 in 1830, then to 169 in 1872.⁹²

Table 4.2 Structure of Production and Consumption, by Industry, 1925, 1930 (%)

	1925		1935	
	Production	Consumption	Production	Consumption
Agriculture	73.8	63.2	61.4	42.4
Fishery	3.9	2.8	3.6	2.5
Forests	3.8	4.1	6.8	6.7
Mining	0.5	0.5	1.6	1.6
Manufacturing	18.1	29.4	26.5	46.8
Textile	2.0	7.3	3.2	9.4
metal	1.1	2.2	1.1	5.0
Machine	0.4	1.3	0.9	5.2
Ceramic	0.7	1.1	1.2	1.9
Chemical	1.2	2.2	1.9	3.0
Woods	0.5	0.6	0.5	0.8
Prints	0.6	0.7	1.0	1.0
Food	6.5	7.5	11.5	12.4
Others	5.0	6.4	5.2	8.1
Total	100.0	100.0	100.0	100.0

Source: Kwak, S. and Lee, H. (1997), Conditions of Economic Development in Korea in the First Half of the Twentieth Century, In Ikeo, A. (ed.), *Economic Development in Twentieth Century East Asia, the International Context*, Routledge: London and New York, p. 92.

Modern markets and financial institutions emerged slowly throughout the first half of the twentieth century. However, as Table 4.2 shows, the Korean economy remained at a primitive and underdeveloped stage. For example, as Table 4.2 shows, agriculture contributed more than 70 per cent of output even in 1925. Manufacturing

industry grew from 18.1 percent in 1925 to 26.5 per cent in 1935. However, the increase in manufacturing was made mostly in foods. In fact, there was a lack of entrepreneurs, capital and technology to develop modern industries. Only 2 per cent of Korean families were working in manufacturing and mining industries in 1920. This proportion was increased to 7.6 per cent in 1943, while families in agriculture decreased from 84 per cent in 1920 to 65 per cent in 1943.⁹³

There was a possibility for Korea to modernise and to improve national economy. However, the old class division undermined the development of a modern economy.⁹⁴ The monarchical centralised government structure based on Confucian principles supported the hierarchical social order of the *Chosun* Dynasty.⁹⁵ This social division affected farming. The state (the royal family) and the aristocracy (scholar mandarins) owned the most crucial economic resources of the agricultural society, land.⁹⁶ This meant that the majority of the aristocracy were members of the landed gentry in economic terms, and the public was engaged with farming or tenant farming. Only a small number of the population was engaged with craft work and commerce. Manufacturing and commercial activity was on a small scale.⁹⁷ When the economy declined in the nineteenth century, it led to a shortage of taxable lands, which in turn caused heavier taxes on tenant farming. Thus the backward conditions of the Korean economy and the operation of rigid class system restricted the national ability to develop modern economy.

Japanese colonisation increased the flow of capital into Korea and boosted industrial activities. However, Koreans themselves owned only a few, small-scale and labour-intensive firms in printing and machinery, while the Japanese ran capital-intensive large-scale firms, as Table 4.3 illustrates in the next page.

Table 4.3 Capital Endowment in Industries by Korea and Japan -1940
(unit:1,000yen)

Sector	Korean		Japanese	
	Amount	Ratio (%)	Amount	Ratio (%)
Printing	1,500	43	2,000	57
Metal	6,100	2	373,000	98
Machine	61,500	42	85,050	58
Chemical	1,000	0	276,250	100
Electricity , Gas	-	0	553,030	100
Ceramic	-	0	53,845	100
Textile	14,000	15	76,600	85
Woods	5,500	10	47,000	90
Food	5,250	7	83,800	93
Others	7,000	8	83,500	92
Total	101,850	6	1,625,475	94

Source: Kwak, S. and Lee, H. (1997), Conditions of Economic Development in Korea in the First Half of the Twentieth Century, in Ikeo, A. (ed.), *Economic Development in Twentieth Century East Asia, the International Context*, Routledge: London and New York, p. 96.

As Table 4.3 shows, Japanese total capital investment in 1940 was fifteen times bigger than that of Koreans, which also meant that the majority of the profit returned to Japan.

The Korean economy suffered throughout the colonial period.⁹⁸ Japan took over the ownership of the land from the Korean aristocracy and increased taxes, which made the conditions hard for tenant farming. Japanese exploited the natural resources of Korea and monopolised the Korean market. The state of the Korean economy grew worse as Korean plantations became the main base of military supply for the Japanese Pacific War.⁹⁹ The quality of education also declined as students were mobilised as a free labour force in afternoon sessions.¹⁰⁰ The Japanese exploitation of human and mineral resources was made extremely harsh in order to support the Japanese war effort.¹⁰¹ The Korean population was devastated, and suffered from the falling of living conditions. Therefore, when Korea was liberated in

1945, there were no trained Korean engineers and technicians or factories, in the south of Korea in particular.¹⁰²

The loss of human and material resources in Korea was severe and the aftermath of the colonisation lasted for a long time. In spite of the high hopes after the liberation from Japan in 1945, it was a challenging task for Koreans to recover from the war-oriented economy and to build a suitable education system for Koreans along with a new national identity.¹⁰³

Thus, effective links between Korean higher education and the economy were not developed, either at the end of the nineteenth century or during the colonial period. Although new schools for practical studies were created from the end of the nineteenth century, the relation between those institutions and the economy was very different from the English one. The case of England was an example of special efforts made to utilise universities for enhancing industrial development in the world market. For Korea, however, it took another half a century to initiate links between the university and industry for the sake of national development.

CONCLUSION

This chapter has analysed the changes in the Korean higher education tradition and the relationships between higher education, the state and the economy during the decline of the *Chosun* Dynasty and the Japanese colonisation period. It has emphasised the declining valuation of Confucian knowledge and its influences on higher education.

In Chapter Two, the thesis proposed that the Tower Model might be a useful tool in analysing changes in traditional higher education comparatively. The key features of the Tower Model are:

- i. The most important form of knowledge in higher education is liberal knowledge. The choice of knowledge in higher education should not be affected by direct political interests or economic pressure.
- ii. Higher education's important role is the reproduction of social and political elites. Elites in this model include traditionally and narrowly defined professions, such as those of political elites, religious leaders and academics.
- iii. The state's role in higher education is very small. Higher education remains isolated from the public as access to higher learning is limited to the ruling class.
- iv. Higher education stays away from the direct pressure from the state and the economy, as higher education maintains a high degree of institutional autonomy and academic freedom in teaching and learning activities.

These features of the Tower Model can be used as an interpretative device emphasising the four themes of knowledge in higher education, the roles of higher education, the state and the economy.

Knowledge in higher education

Confucian ideas were the most respected form of knowledge in the Korean higher education tradition. However, the belief in Confucian knowledge was weakened under the impact of practical and scientific knowledge from the West. *Silhak* (pragmatic study) scholars paid more attention to new knowledge - foreign languages, mathematics, geography and history – and education in these new kinds of knowledge, while the valuation of Confucian knowledge and Confucian education at *Sungkyunkwan* diminished at the end of the nineteenth century.

The roles of higher education

The primary role of *Sungkyunkwan* was the reproduction of socio-political elites (the scholar-mandarins on the model made familiar by Weber's analysis of China¹⁰⁴). *Sungkyunkwan* also transmitted Confucian ideas as the foundation of the social and political order of the society. However, new modern institutions – *Dongmunhak*, *Eukyoung Kongwon* and *TongByun* School - were created to produce new kinds of elites with practical knowledge and skills during the last two decades of the nineteenth century. These newly educated elites became social and political leaders in the modernisation of the country - in schools and institutions, the armed forces and governments.

The state

The state played an important role in the development and the management of *Sungkyunkwan*. Confucian education in Korea was closely linked to the *Chosun* government, (again, as in China, where government depended on the recruitment of scholar mandarins). Especially in a Confucian state, “a good government depended primarily on obtaining a good ruler, and this in turn depended on scholarship”.¹⁰⁵ However, the Korean government and its scholar mandarins failed to increase the national power required for the maintenance of national security at the end of the nineteenth century; this failure caused the closure of *Sungkyunkwan* in 1910. The Japanese colonial government created *Kyoungsung* Imperial University and utilised it for the promotion of colonial control and the education of new kinds of local Korean elites.

The economy

Sungkyunkwan did not develop links with the economy, which was still basically agricultural. During the early twentieth century, the Korean economy

experienced a limited degree of development as a sub-economy for Japan, with the creation of modern financial systems and manufacturing industry, but ideas about a powerful cooperative relation between advanced education and the economy did not develop.

Overall, the application of the Tower Model was helpful in analysing the rapid changes in the higher education tradition at the end of the nineteenth century. The collapse of the Confucian education tradition in the beginning of the twentieth century resulted in the abandoning of that tradition and a dependence on new educational ideas from the West. The instability caused by the collapse of the tradition meant the creation of a new higher education system.

In the following chapters, the thesis will examine the development of national higher education systems during the economic development period - the 1960s and the 1970s - in England and South Korea, in relation to the state and the economy.

ENDNOTES FOR CHAPTER FOUR

¹The first recorded formal education institution in ancient Korea was *Hwarangdo* in the *Shilla* Dynasty (57BC-935AD), which produced national leaders based on shamanism, Buddhism and Taoism. Adams, D. and Gottlieb, E. (1993), *Education and Social Change in Korea*, Garland Publishing, INC: New York & London, p. 5.

² Kim, Dukchung, (2000), *Education in Korea 1999-2000*, The Ministry of Education Republic of Korea, p. 28.

³ During the *Koryo* Dynasty (918-1392) the name of the state higher education institution had changed to *Kukhak*, *Kukjakam*, *Sungkyunkwan* or *Sungkyunkwanhak*. There was a cultural tension between the native Korean tradition and the Chinese influences on education. For example, *Kukjakam* was based on Chinese model. However, King *Chungryol* replaced *Kukjakam* with *Kukhak* in order to emphasise the Korean tradition, differentiating from the Chinese system. This tension continued until the higher education system was settled by the establishment of *Sungkyunkwan* in 1367. Kim, Chungkil *et al.* (1988), *한국 고등교육사 연구*, [A Study of the Historical Development of Korean Higher Education], Korean Council for University Education: Seoul, p. 70.

⁴ Neo-Confucianism was a new interpretation, against the traditional Confucian study dating from the Tang Dynasty. It implies a metaphysical understanding of the cosmos based on a dualism of principles, the inner realm (the principles in the mind), and principles in external things. Son, Insoo, (1998), *한국 교육사*, [A History of Korean Education 1], Muneumsa: Seoul., pp. 207-208.

⁵ The Nine Great Books of Confucian Studies in *Koryo* Dynasty became the main curriculum in *Sungkyunkwan* under the *Chosun* dynasty. Kim, Chungkil *et al.* (1988), *ibid.*, pp. 74-75.

⁶ The moral principles that refined individual personality and brought harmony and order to society were emphasised in order to achieve the ideal nature of the human being. The family was the core unit in the hierarchical social order. Respect of the parents, the old, teachers, seniors and the king was the essential virtue of society. The collective and family-oriented understanding of social relation was very different from individual-oriented Western society. Choi, Bongyoung, (1998), *한국교육의 본질적 이해*, [An apprehension of the nature of Korean Education], *전통과 현대*, [Tradition and Today], Summer, pp. 73-74.

⁷ The moralistic Confucian principles clearly defined the social order and the role among people in the society. Each person was to learn the appropriate behaviour and responsibilities according to his/her social status, such as being old, young, son, daughter, husband, wife, friend, student, teacher, government official or a ruler. Adams, D. and Gottlieb, E. (1993), *ibid.*, p. 9.

⁸ Choi, Bongyoung, (1998), *ibid.*, p. 75.

⁹ There was no legal regulation in the establishment or management of *Sôdang*. The education was mainly basic reading and writing. The books for reading were the

Confucian classics, which stressed the importance of learning lessons from the lives of the great Confucian Scholars. Different age group of students were taught together, and students were able to learn according to their own ability. The quality of education varied depending on the teacher. Education in *Sôdang* contributed to literacy in Chinese characters and basic Confucian ideas of the public. Son, Insoo, (1998), *ibid.*, pp. 330-334.

¹⁰ *Sahak* and *Hanggyo* were public institutions and were under the direct management of the government. The local government supported *Hanggyo*, not only as the educational centre for local civil servants, but also as the centre of the local culture. However, *Suwon*, which was independent institution but was still granted state funds, were able to develop unique educational programmes and curricula. Son, Insoo, (1998), *ibid.*, pp. 289, 311-325.

¹¹ Adams, D. and Gottlieb, E. (1993), *op. cit.*, p. 8.

¹² KEDI, (1994), *한국 근대 학교교육 100 년사 연구: 개화기의 학교 교육*, [A study of the history of modern education under the Late Yi Dynasty], KEDI Press: Seoul, p. 41.

¹³ Yoo Hyungwon's idea was later developed by Lee Ik (1681-1763), Chung Jaedu and Yang Deukchung. However, it was only a small group of scholars who stayed outside the main political power circle. Chun, Minho, (2001), *조선후기 교육 정책 연구*, [A Study on the Education Policy in the Late Chosun Dynasty], Dissertation: (MA) Korea National University of Education, pp. 4-5.

¹⁴ Practical studies flourished during the eighteenth century, while the nation enjoyed economic prosperity, especially under King Young Cho and King Chung Cho. Son, Insoo, (1998), *ibid.*, pp. 405-407.

¹⁵ From the early eighteenth century, two schools of practical studies were developed. One of them was the *Sungho* School, led by Yoo Hyungwon, Lee IK and Chung Yakyong. Another was the *Bukhak* School led by Hong Daeyong (1731-1783), Park Jiwon (1737-1805) and Park Jeka (1750-1805), who stayed in the main political power circle. Chun, Minho, (2001), *ibid.*, pp. 6-7.

¹⁶ Son, Insoo, (1998), *ibid.*, p. 411.

¹⁷ Son, Insoo, (1998), *ibid.*, p. 412.

¹⁸ The practical studies inclined revolutionary thinking in terms of the traditional Korean view of the society. However, they were not able to overcome the stubborn beliefs in Confucian ideas of the political power holders in the central government. Son, Insoo, (1998), *ibid.*, pp. 439-440.

¹⁹ KEDI, (1994), *ibid.*, p. 119.

²⁰ KEDI, (1994), *ibid.*, pp. 120-121.

²¹ The criteria for qualification were lowered to admit more students from schools in the provinces. However, the government often failed to recruit the annual intake of

200 students towards the end of *Chosun* dynasty with the decline of *Sungkyunkwan*. Son, Insoo, (1998), op. cit., pp. 294 -295.

²² All students stayed in a dormitory. They were asked to register both in the morning and in the afternoon. Students' attendance was recorded. Son, Insoo, (1998), op. cit., pp. 296-297

²³ Students had a writing test every ten days, and the test results were recorded. Students also had a monthly test and two major tests in March and in September. The distinctive achievers at these major tests were qualified for an early State examination. Son, Insoo, (1998), op. cit., pp. 273-274.

²⁴ The royal examination system was developed based on the Chinese model from the 10th century to the 19th century. Young scholars aimed to become scholar mandarins by passing the examination. Adams, D. and Gottlieb, E. (1993), *ibid.*, p. 8.

²⁵ Son, Insoo, (1998), *ibid.*, pp. 298-299.

²⁶ The two-tier system helped to improve the quality of technical education. For example, the number of subjects was increased to ten courses. Nonetheless, technical study was still regarded as inferior to Confucian study. Kim, Chungkil *et al.* (1988), *ibid.*, pp. 74-78.

²⁷ The number of higher-ranking mandarins who were appointed to the teaching and administration positions at *Sungkyunkwan* increased. Kim, Chungkil *et al.* (1988), *ibid.*, pp. 73-74.

²⁸ Within Confucian study, different group of schools which developed different methodologies on the interpretation of Confucian ideology were formed. For example, "scholars agree that the same principles served as patterns in the mind and in things and these principles were in inherently good; however, they disagree on where to focus to find principles." Tillman, H. (1982), *Utilitarian Confucianism Ch'en Liang's challenge to Chu Hsi*, Harvard University Press: Cambridge and London, p. 41. see also In Korea, for example, Yi Whang (1501-1570) followed Chu Hsi's Neo-Confucian principles, arguing that 'mind and things' should be balanced. However, Yi Lee (1536-1584) put focus on 'things' rather than the 'mind'. The different schools influenced the priorities of the government, including those in education, as leading scholars had many followers and apprentices, and often created their own schools to teach their ideas. Later this brought negative influences on the Royal court, as different groups formed different opinions on national policies, which led to a power struggle like that of modern political parties. Son, Insoo, (1998), op. cit., pp. 383-403.

²⁹ The purpose of Confucian education was training to be a Sage like the Great Scholars. However, in practical sense, an ideal scholar mandarin meant a scholar with profound knowledge in Confucian ideas and practical management skills used to serve the government. Chang, Jaecheon, (2001), A Study on the Changes of the Educational Evaluation and Curriculum at *Sungkyunkwan* in the Early *Chosun* Dynasty, *교육연구*, [the Journal of Educational Research], Vol. 39, No.1, pp. 296-297.

³⁰ KEDI, (1994), op. cit., p. 9.

³¹ The government's ban on the Catholics had caused a series of incidents with French and American ships. These made the *Chosun* government avoid interaction with foreign countries and turn to a closed foreign policy, which made it easy for the *Chosun* government to avoid the overwhelming foreign power. Ibid.

³² KEDI, (1994), op. cit., p. 9.

³³ *Byulkikun* was the first modern army in Korea. *Byulkikun* did not replace the whole traditional army; however, it had new training courses, a new uniforms, a new ranking system and modern arms (rifles). Later it became a model for the modern military school. Ibid.

³⁴ Ibid.

³⁵ Ibid.

³⁶ Korean students were trained in different fields and in different places in China. Students learned Western languages and literature, printing, machinery, chemistry, electronics, iron casting and gunpowder. The training programmes were successful; however, it was interrupted by the 1882 Crisis that threatened the Korean government. Nonetheless, the government made a remarkable effort to educate practical knowledge and technology that was ignored for long time. KEDI, (1994), op. cit, p. 11.

³⁷ Ibid.

³⁸ The government supported English language learning in order to assist the increasing work of foreign relations. KEDI, (1994), ibid., p. 10.

³⁹ The Education Mission group, the *Bobingsa*, was sent to America after the signing of the Treaty of Amity and Trade with America. In Korea, American teachers introduced an American type of curriculum to *YukyongKongwon* for the first time. The education programmes and the evaluation system became a model for other new schools. One hundred and twenty students were educated in *YukyongKongwon*, until the school was restructured as a state English school by the *Kabo* reform in 1895. Lee, Kwanglin, (1993), *개화기의 한국사 연구*, [A Study of the Enlightenment Period of Korean History], Ilchokak: Seoul, pp. 103-133.

⁴⁰ Some of the graduates carried on studying. For example Min Sangho and Yoon Chungsik went to America to study and later worked as government officers. Others became teachers or interpreters. Sin Nakkyun became a leading member in the establishment of *Kwangheawon*, the first medical school in Korea. Lee Jinho became an officer of the new Army. KEDI, (1994), ibid.

⁴¹ Park, Deuk-jun, (1989), *조선의 근대 교육사*, [Modern Educational History of Chosun], Hanmadang: Seoul, p. 12.

⁴² Kim Okkyun was one of the leading Enlightenment scholars at the end of the nineteenth century. He travelled to Japan and studied the Western culture and education systems. When he returned, he selected students to educate them in Japan. His reform ideas were radical and so became a problem to the Korean conservative

leaders. However, his ambition for education influenced the next generation. Son, Insoo, (1998), *ibid.*, pp. 539-540.

⁴³ KEDI, (1994), *한국 근대 학교교육 100 년사 연구(1): 개화기의 학교 교육*, [A study of the History of Modern Education under the Late Yi Dynasty], KEDI Press: Seoul, pp. 12-13.

⁴⁴ *Ibid.*

⁴⁵ The relation between Korea and America became closer after the 1882 Treaty. Min Youngik was sent to America as a Korean ambassador. He travelled by train from San Francisco to Washington, and explored American culture and modern social systems. John F. Goucher suggested missionary work for Korea to Min Youngik. He transported R. S. Maclay to Korea from Japan in January 1884. Kim Okkyun helped Maclay to meet King Gochong and get royal permission to establish education and medical services in Korea. This helped Americans to dominate missionary work in Korea. Son, Insoo, (1998), *ibid.*, pp. 541-542.

⁴⁶ Teaching, preaching and healing were the prime duties of the missionary, according to the Script. American missionaries built schools and clinics for Koreans. Son, Insoo, (1998), *ibid.*, p. 543.

⁴⁷ H.N. Allen was able to earn full support from Min Youngik after he treated him. On April 10, 1885, by Royal Decree, King Kojong opened the first modern hospital, the *Kwanghyewon*, and Dr. Allen took charge of the hospital. The *Chosun* government funded the establishment of *Kwangheawon*, and built forty beds. with a women's ward, a specialist ward, consulting rooms, theatres, a pharmacy, and dining areas and gardens. Son, Insoo, (1998), *op. cit.*, pp. 543-544.

⁴⁸ In March 1886, the *Kwanghyewon* admitted 16 students to train as Korea's first modern medical doctors. www.yonsei.ac.kr.

⁴⁹ In 1893, Dr. O. R. Avison took over the hospital from the Korean government. Subsequently, the Medical Centre was renamed in 1904 as the Severance Medical College and Hospital in honour of Mr. L. H. Severance for his generous donations to the school. Dr. Avison became the first principal. In 1915, the Chosun Christian College was founded chiefly through efforts of Dr. H. G. Underwood, the pioneering Protestant missionary who served as the Chosun Christian College's first president. Two years later, the college was renamed as Yonhi College to become Korea's first modern college. During the 1920s, Dr. Avison served as the president of both colleges, which later merged. www.yonsei.ac.kr

⁵⁰ Son, Insoo, (1998), *ibid.*

⁵¹ Students aged between 20 and 40 (later lowered to 30) were selected based on reading, writing, history and geography tests. Korean and foreign languages, education, history, geography, mathematics, sciences and writing were the main curriculum. Students were qualified to enter the final examination for graduation after a minimum two-year study. However, a six-month express course was also available. KEDI, (1994), *A study of the history of modern education of Late Yi Dynasty*, KEDI Press: Seoul, pp. 17-18.

⁵² KEDI, (1994), op. cit., p. 18.

⁵³ KEDI, (1994), op. cit., p. 22.

⁵⁴ Ibid.

⁵⁵ The introduction of modern military training in the 1880s was developed to creation of a modern military school in 1895. Physical training such as fighting, shooting and gymnastics was the core curriculum. The age for selection was lowered from 30 to 27, and later transformed to a three-year junior academy (aged between 15 and 18) and a three-year senior academy (19 and above). KEDI, (1994), op. cit., pp. 24-26.

⁵⁶ KEDI, (1994), op. cit., pp. 27-28.

⁵⁷ KEDI, (1994), op. cit., p. 76.

⁵⁸ Wilkinson, R. (1964), *The Prefects: British Leadership and the Public School Tradition – a comparative study in the making of rulers*, Oxford University Press: London, NewYork and Toronto, p. 128.

⁵⁹ During the *Koryo* Dynasty Buddhism and Confucian ideology co-existed, although Buddhism was the state religion. The Neo-Confucian ideology, which was introduced during late *Koryo*, became a foundation of the new social order after the establishment of *Chosun* Dynasty, as the fall of *Koryo* was partly blamed Buddhist monks whose political intervention weakened the royal court. For education, Confucian ideas stressed the virtues of righteousness, wisdom and empathy, and the aim to be a “Sage”, that can be achieved by learning through self-cultivation. Adams, D. and Gottlieb, E. (1993), *ibid.*, p. 8.

⁶⁰ As the *Chosun* Dynasty (1392-1895) moved to a new capital, Seoul, in 1395. *Sungkyunkwan* was also re-located in Seoul (at the current site) in 1398. The size of the institution grew. Higher-ranking government officials, (around 38, including a third-grade mandarin as the dean) were appointed for teaching and the management of *Sungkyunkwan*. The *Chosun* government was able to develop systematic management and education systems. Kim, Chungkil, *et al.* (1988), *ibid.*, pp. 71-74.

⁶¹ *Kyungkuk Daejun*, (The Great Book of Laws) was the prime code of laws of *Chosun* Dynasty. The first volume was codified in 1460. The whole six volumes were completed in 1469. They covered the basic principles of *Chosun* Dynasty, the governing system, economy, culture and education. The Education Regulations in *Kyungkuk Daejun* were regulations for state-managed institutions such as *Sungkyunkwan*, *Sahak* and *Hangkyo*. Son, Insoo, (1998), *ibid.*, pp. 272-273.

⁶² Throughout the *Chosun* dynasty, education both at public and private institutions was important for the transmission of Confucian knowledge. However, the excessive-growth of private institutions weakened public institutions, affecting the national examination system and the role of *Sungkyunkwan*. Woo, Yongjae, (1999), *조선 후기 교육 개혁론 연구*, [A Study of Education Reform in Late Chosun], Educational Sciences Publishing: Seoul, pp. 12-14.

⁶³University of Sungkyunkwan, (1996), *성균관 대학사*, [A History of Sungkyunkwan University], Sungkyunkwan University Press: Seoul, p. 120.

⁶⁴ Ibid.

⁶⁵ University of Sungkyunkwan, (1996), op. cit., pp. 121-123.

⁶⁶ The *Yoonyangho* Incident was a Japanese attempt to invade the Korean shores. The Japanese ship came to the west coast of Korea and demanded the opening of Korean ports to Japan. Son, Insoo, (1998), op. cit., p. 538.

⁶⁷ The *Yoonyangho* Incident led Korea to sign an unequal treaty with Japan, the *Kangwhado* Treaty. According to this treaty Pusan (the southern port of Korea) was opened in October 1876, Wonsan (the northeastern port of Korea) was opened in April 1880 and Inchun (the western port near Seoul) was opened in January 1883. These two incidents (the *Yoonyangho* Incident and the *Kangwhado* Treaty) showed the growing military power of Japan in Korea and the gloomy future for Korea. Ibid.

⁶⁸ KEDI, (1994), op. cit., p. 15.

⁶⁹ Japan introduced the parliamentary governing system in Korea. The new Ministry introduced 208 new policies in just four months. Ibid.

⁷⁰ The *Kabo* Reform contributed to the establishment of a legal foundation for the modern schooling system in Korea. Ibid.

⁷¹ KEDI, (1994), op. cit., p. 30.

⁷² The *Kabo* Reform in 1894 was a failed and short-lived reform, initiated by pro-Japanese Koreans. However, the successful achievement of modernisation of Korean education in the previous decade was accelerated in a way by the reform, as educational modernisation continued long afterward. KEDI, (1994), op. cit., p. 16.

⁷³ The conflict of interests between Russia and Japan in Korea led to a war from February 1904. The victory of Japan against Russia secured the Japanese power in Korea. Choi, Moonhyung, (2004), *국제관계로 본 러일 전쟁과 한국 병합*, [The Russia-Japan War and Japanese Annexation to Korea by the Analysis of International Relations], Jisik-Sanup Publication: Seoul, pp. 313-319.

⁷⁴ As Britain, France, America and Russia gave a tacit; Japan expanded her military power in Korea and forced the signing of an unequal treaty in 1905, Ulsa Treaty. Thereafter Japan could intervene in politics, military, finance and foreign affairs in Korea. Choi, Moonhyung, (2004), op. cit., pp. 320-321.

⁷⁵ Park, Deukjun, (1989), *조선의 근대교육사*, [Modern Education History of Chosun], Hanmadang: Seoul pp. 17-19.

⁷⁶ Rho, Youngtaik, (1979), *일제 식민기의 대중 교육 운동사*, [A History of the Mass Education Movement under Japanese Colonialism], Namgudang: Seoul, p. 26.

⁷⁷ “Simplicity and practicality” had lasted throughout the Japanese colonial period, although these policies were confronted with strong resistance by Koreans from time to time. KEDI, (1997), *한국 근대 학교교육 100 년사 연구(2): 일제시대의 학교교육*, [A Study of the History of Modern Education during Japanese Rule], KEDI: Seoul, p. 15.

⁷⁸ Adams, D. and Gottlieb, E. (1993), *Education and Social Change in Korea*, Garland Publishing, INC: New York & London, p. 12.

⁷⁹ Adams, D. and Gottlieb, E. (1993), op. cit., p. 13.

⁸⁰ The number of higher education institutions grew slowly after the establishment of a teacher training college in Seoul. Adams and Gottlieb, (1993), Ibid., p. 14.

⁸¹ KEDI, (1997), op. cit., pp. 27-28.

⁸² KEDI, (1997), op. cit., p. 30.

⁸³ KEDI, (1997), op. cit., p. 29.

⁸⁴ Adams, D. and Gottlieb, E. (1993), op. cit., pp. 15-16.

⁸⁵ KEDI, (1997), op. cit., p. 31.

⁸⁶ Adams, D. and Gottlieb, E. (1993), ibid.

⁸⁷ Lee, Inkyu, (1990), *한국 교육 과정의 변천과 외세* [Changes in the Education Curriculum and Foreign Power in Korea], in Lee, Chong-tae (ed.), *분단시대의 학교 교육*, [School Education in Partitioned Period], Green Tree Press: Seoul, p. 269.

⁸⁸ Rhee, Younghoon, (ed.), (2004), *수령 경제사로 다시 본 조선 후기*, [Re-examination of the late Chosun with Economic Statistics], Seoul National University Press: Seoul, pp. vi-vii.

⁸⁹ Kwak, S. and Lee, H. (1997), Conditions of Economic Development in Korea in the First Half of the Twentieth Century, In Ikeo, A. (ed.), *Economic Development in Twentieth Century East Asia, the International Context*, Routledge: London and New York, p. 90.

⁹⁰ Rhee, Y. (2004), The New Tendencies and Tasks in the Economic History Studies of the eighteenth and the nineteenth century Korea, in Rhee, Younghoon, (ed.), *수령 경제사로 다시 본 조선 후기*, [Re-examination of the late Chosun with Economic Statistics], Seoul National University Press: Seoul, pp. 372-336.

⁹¹ Rhee, Y. and Park, Y. (2004), *농촌 미곡시장과 전국적 시장통합*, [The Rural Rice Market and Market Integration at the National Level], 1713-1937, in Rhee, Younghoon, (ed.), *수령 경제사로 다시 본 조선 후기*, [Re-examination of the late Chosun with Economic Statistics], Seoul National University Press: Seoul, p. 257.

⁹² Rhee, Y. and Park, Y. (2004), op. cit., pp. 257-258.

⁹³ Kwak, S. and Lee, H. (1997), *Ibid.*, pp. 94-95.

⁹⁴ Apart from foreign imperialism, the extraordinary stability of the *Chosun* dynasty, which was produced by interactions between a monarchical, bureaucratic and centralized government structure and an aristocratic and hierarchical social system, hindered Korea's capacity to adapt to the modern world. Amsden, A., (1989), *Asia's Next Giant-South Korea and Late Industrialisation*, Oxford University Press: New York and Oxford, p. 29.

⁹⁵ *Ibid.*

⁹⁶ Amsden, A.H. (1989), *op. cit.*, pp. 29-30.

⁹⁷ The Confucian class system was hindering a move to a free market with competition. The monopolised and small-sized Korean economy was not able to compete with foreign traders. Amsden, A.H. (1989), pp. 30- 31.

⁹⁸ OECD, (1998), *Review of National Policies for Education, Korea*, OECD, p. 93.

⁹⁹ KEDI, (1997), *한국의 교육과 국가 발전: 1945-1995*, [Korean Education and National Development: 1945-1995], KEDI: Seoul, p. 18.

¹⁰⁰ The Fourth Korean Education Regulation allowed exploitation of Korean students as workers for the Japanese war industry. KEDI, (1997), *한국 근대 학교교육 100 년사 연구(2): 일제시대의 학교교육*, [A Study of the History of Modern Education during Japanese Rule], KEDI: Seoul, pp. 31-32.

¹⁰¹ Adams, D. and Gottlieb, E. (1993), *op. cit.*, p. 16.

¹⁰² Kwak, S. and Lee, H. (1997), *ibid.*, p. 97.

¹⁰³ Kim, Sinil, (1994), *교육 사회학*, [Sociology of Education], Educational Science Company: Seoul, p. 123.

¹⁰⁴ Wilkinson, R. (1964), *The Prefects: British Leadership and the Public School Tradition – A Comparative Study in the Making of Rulers*, Oxford University Press: London, New York and Toronto, pp. 125-126.

¹⁰⁵ Wilkinson, R. (1964), *ibid.*, pp. 131-132.

CHAPTER FIVE

HIGHER EDUCATION AND THE NATIONAL ECONOMY: ENGLAND

The purpose of Chapter Five is to describe the development of the English higher education system and the new forms of the relation of higher education with the government and the national economy in the years after the Robbins Report (from 1963 to 1987).

The narrative section of the chapter will firstly focus on how the changes in the valuation of knowledge and the increasing political awareness of the potential roles of higher education affected the development of national higher education provision in England between the 1960s and the 1980s. Secondly, it will look at the development of the binary higher education system and the creation of new research and development (R&D) centres and science parks in universities in order to understand the forms of joint activities between the university and industry.

The chapter argues that a new provision for English higher education was constructed in the 1960s. As the public roles of higher education grew in English society, the ideas about appropriate forms of higher education were redefined. The government made efforts to rearrange the relations between higher education and the economy, as new knowledge and technology and the labour force that higher education produced became vital to the national development and security and as a new international market and a new world order emerged.

CHANGES IN THE CHOICE OF KNOWLEDGE IN ENGLISH HIGHER EDUCATION

The creation of new civic universities in industrial cities in the 1880s had improved the provision of science and technical education, as this thesis examined in

Chapter Three earlier. However, the liberal tradition of higher education in the old English universities continued, and early in the twentieth century new universities grew following the model of Oxford and Cambridge.

The focus on liberal education soon brought difficulties in the protection of national security and national development. For example, in spite of its earlier economic prosperity, England suffered from deficiencies in scientific knowledge and expertise during the First World War.¹ This difficult experience led to the establishment of the Department of Scientific and Industrial Research in 1915² and the creation of the University Grants Committee (UGC) in 1919 to support science education in universities.³ Along with the creation of these governmental support systems, public funding to universities also grew.⁴ These developments put England in a different position during the Second World War.⁵ Universities produced valuable research results and contributed to the victory in the war. Especially Cambridge, Oxford, Birmingham and Bristol led research on radar.⁶ Joint work between universities and industries in atomic energy was also successful.⁷ For example, for the final construction of the atomic bomb, universities and ICI Metals, ICI Press and the Sun Engraving Company all worked together.⁸ Other university science departments also supported the war.⁹

Thus the development of the joint work of universities and industries during the war affected scientific research in universities.¹⁰ Co-operative research showed the vitality of scientific knowledge in sustaining national military power.¹¹ These positive experiences became models for university-industry cooperation.

The impact of the Second World War on English society was also significant. For example, the application of nuclear power to the generation of energy and to medicine for civilian purposes, and the development of science-based industries such

as electronic and optics were all inspired by the war industries.¹² These developments initiated active discussions about the importance of science and technology education, and encouraged the government to consider the provision of university education in relation to national military power and economic development.

The aftermath of the Second World War, therefore, created a need to expand higher education and encouraged the government to form new higher educational policies.¹³ The future of university education had already become a political issue during the Second World War, and the government was aware of the need to provide the necessary funding for its growth.¹⁴ Many important government reports that influenced the reform policy were presented in the 1940s and the 1950s.

The 1944 Education Act re-drew the map of governmental involvement in the provision of the national education system.¹⁵ The Act was primarily aimed at the introduction of free universal secondary education for all, but it also influenced the formation of new higher education policy in two ways.¹⁶ Firstly, the Act shifted the balance of power between central and local government, as more controlling power was given to the Ministry of Education to integrate the national education system.¹⁷ Secondly, the increasing governmental involvement in the provision of secondary education showed the same possibility in higher education. Free universal secondary education meant an increase in the number of students who would be qualified for university education.

Other national reports, such as the UGC Report to the Treasury in 1945, the Percy Report in 1945, the Barlow Report in 1946, and the 1956 White Paper, discussed the future of higher education. For example, the UGC report in 1945 suggested an increase in public funding and pointed out that the expansion and improvement of facilities for university education for the public interests could be

achieved only with the aid of greatly increased subventions from the Exchequer.¹⁸

The Percy Report on Higher Technological Education also insisted that:¹⁹

English industry requires a responsive and adaptable organization to technological education. The existing national provision for such education lacks focus... The responsibility for meeting the demand for engineer scientists and development engineers rest primarily with universities. The academic education required is a good first degree in engineering science, which should be followed by post-graduate specialist study in technological subjects, either following immediately on the degree, or taken at a later stage after a period of experience in industry. Such post-graduate study is common in University Departments of Pure Science; it has been too infrequent in most of their Departments of Applied Science.

The Percy Report pointed out the English failure in the application of science to industry and stressed the importance of both the qualitative and quantitative improvement of science education. In particular, the Report emphasised the education of scientists and technologists with industrial administration and management skills.²⁰

The Barlow Report on scientific manpower pointed out that, the future progress and welfare of the nation depended on British scientists.²¹ The Report proposed a plan to double the production of scientists over the next following ten years, and recommended the government to support the financing and accommodation of that expansion, as universities would be the key to scientific growth.²²

Thus in general the importance of financial support for science and technology education and of the production of scientific manpower was agreed by many academics and politicians.²³

In 1956, the White Paper on Technical Education was presented; this drew the initial plans to create new technical colleges in the next five years.²⁴ The five-year plan in the White Paper included an increase in the output of technical courses, the improvement of the standard of the Diploma in Technology, the creation of Technical State Scholarships and good cooperation between colleges and industry.²⁵ Between 1957 and 1961, ten local colleges were selected and renamed as Colleges of

Advanced Technology (CATs).²⁶ The changing status reflected the growing attention to scientific knowledge and technology of many politicians and academics,²⁷ but real improvement in science and technical education in the English higher education came in the 1960s.²⁸

The consensus of the government, universities and industries about the importance of scientific knowledge and technology for national development was an important advance, considering the low position of science education in English university at the end of the nineteenth century. This increased attention to scientific knowledge and technology in higher education.

THE ROLE OF HIGHER EDUCATION

In this section, this chapter will discuss the growing role of English higher education.

The traditional roles of English universities, as discussed in Chapter Three, had been the production of political and social elites. However, governmental support for the expansion of higher education – for the improvement of science and technical education in particular - began to redefine the role of higher education in the post-war years. For example, Dr. Jacob Bronowski pointed out the poor treatment of science by the English tradition, remarking that “the role of education was in transmitting and reproducing the liberal and ‘out-dated’ values of Victorian England.”²⁹ In 1959, Sir (later Lord) Snow pointed out the lack of understanding between ‘literary intellectuals’ and scientists.³⁰ In his lecture, ‘*The Two Cultures and the Scientific Revolution*’, he argued that the dominant tradition of literary culture had a negative

effect on English society, as “the educational system produced a tiny elite of people trained in just one academic skill,” and therefore he urged to alter this state “by rethinking our tradition”.³¹

English industrialists favoured the expansion of higher education, as they were aware of the possible benefits of more technicians and engineers for industrial development.³² English industries were experiencing rapid structural changes in the 1960s. For example, semi-skilled and unskilled manual occupations declined, while professional and high-technical occupations that required degree qualifications increased by seventy-two per cent.³³ The pattern of employment for graduates changed as industries recruited more of them. For example, Imperial Chemical Industry (ICI) employed thirty graduates per 1,000 employees in 1932, but seventy in 1965.³⁴ This change encouraged the graduates to enter to the industry and commerce for their first jobs.³⁵

Table 5.1 Percentage of First Degree Graduates Taking up First Employment at Home in Industry and Commerce

	Men	Women	Total
1962	64.9	22.1	56.4
1963	63.5	21.4	54.4
1964	67.9	25.0	58.2
1965	69.2	26.4	58.9
1966	72.3	27.3	62.7
1967	70.2	32.2	62.2
1968	71.3	33.0	62.6
1969	73.5	41.0	66.1

Source: Sanderson, M. (1972), *The Universities and British Industry 1850-1970*, Routledge and Kegan: London, p. 367.

Table 5.1 shows the increasing proportion of graduates who took their first jobs in industries and commerce during the 1960s. Especially, the increase in the number of

male graduates in social studies - mainly economic studies - who entered industry in the late 1960s was remarkable.³⁶

The percentage of university entrants in the age cohort increased from 3.8 per cent in 1957 to 6.3 per cent in 1967.³⁷ The quantitative expansion of technical colleges attracted more students to study science subjects. Accordingly, the number of students in applied science subjects increased in the 1960s. However, the proportion of undergraduate students in the arts (arts plus social studies) was still 42.2 per cent in 1961-1962 and 43.6 percent in 1966-1967.³⁸ This was almost the same figure as before the Second World War. This meant that there was still room for the further expansion of science and technical education.

In spite of the political efforts to improve science and technology education and support for the creation of closer relations between the universities and industries, there were still concerns about the provision of science and technology education in university.³⁹ The narrow and specialised science education given in universities was not producing scientists or technicians who were fit for rapidly changing industries. Newly graduated technicians and engineers needed to be re-trained to adapt to real working conditions, as the gaps between university laboratories and these conditions were still wide. Hence the provision of science and technical education needed to be re-considered in relation to the practical needs of industry. Thus in spite of the political effort to produce more scientists, technicians and engineers for national industrial development in the 1960s, the achievement was still disappointing.⁴⁰

The development of science and technical education in universities slowed down in the 1970s. For example, the number of students in science, engineering and technology studies became lower than that in non-science studies in the 1970s. Graduates in general increased by 170 per cent between 1963 and 1974; however, the

expansion rates were only 110 per cent in science and 120 per cent in engineering.⁴¹ Despite the increased political support, university graduates with science and engineering degrees fell from about 55 per cent of the total in 1963 to about 46 per cent in 1974.⁴² This meant that in 1974-75 there were about 18,000 vacant undergraduate places in science and science-related subjects in universities. The situation of postgraduate studies in these subjects was very similar; however, it was disguised by the growing number of graduates from overseas who took postgraduate places.

The shortage of students in science and science related studies also appeared in Advanced Level GCE entries in science and technology education.⁴³ For example, all Advanced Level GCE passes in England and Wales increased by 69 per cent between 1963 and 1973, but the increase rates in the principal science subjects were considerably lower: it was only 14.3 per cent in physics, 22.2 percent in chemistry, 41.3 per cent in mathematics and 59.2 per cent in biological sciences, compared with 119.5 per cent in English literature, 121.7 per cent in art, 164.9 per cent in economics and 100.9 per cent in geography.⁴⁴ This low interest of students in science studies indicated that there would not be an improvement in the near future.

Apart from the failure to recruit students, there was also a growing dissatisfaction with the output of university education.⁴⁵ Industry complained about the poor educational performance of the universities. The government recognised this problem, and pointed out that “industry willingly admits that the top strata of new graduates are the equal of any in the world. But they say that the graduate output, of engineers especially, has a very poor ‘tail’. The quality in terms of motivation and breadth drops away more sharply than in other areas.”⁴⁶ The government’s expansion policy was failing to meet either the demands from young people or industrial needs.⁴⁷

However, it was believed that the problem of science and engineering education in the 1970s was not solely due to the lack of governmental support. The crisis mainly derived from the unfitness of higher education for working conditions, and the failure to recruit students to rather unpopular science and engineering studies.⁴⁸

As the expansion policy was failing to improve science and technical education, the English government re-considered the purpose of the educational services and the traditional responsibility of university education in the context of economic changes.⁴⁹ In his speech at Ruskin College in October 1976, James Callaghan expressed his concern that education was not serving the needs of industries and commerce, and called for a national debate on the issue. The Green Paper reinforced the theme outlined by the Prime Minister:⁵⁰

The school system is geared to promote the implementation of academic learning and careers, with the results that pupils, especially the more able, are prejudice against work in productive industry and trade; that teachers lack experience, knowledge and understanding of trade and industry; that curricula are not related to the realities of most pupils' work after leaving school; and that pupils leave school with little or no understanding of the workings, or the importance, of the wealth producing sector of our economy.

The Ministry of Education and Science developed new policies.⁵¹ The new ideas of the government on curriculum, planning, funding and educational opportunities were applied in schools and institutions.

Thus it can be argued that as the education of science and technology became an important part of higher education, the roles of English higher education grew wider than those of the traditional institutions. Especially, higher education began to supply increased number of graduates with science and engineering degrees from the 1960s. However, despite the improvement of science and technical education, English higher education still failed to meet industrial demands.

The English government maintained its support for science and technology education that could suit the working practices of industries. The role of the English government in leading higher education has become important. In the following section, this chapter will examine the growing roles of the state in the development of higher education.

THE ROLE OF THE STATE: THE REFORM OF THE ENGLISH HIGHER EDUCATION SYSTEM

This section will describe the role of the English government in development of the English higher education system after the Robbins Report.

After the Second World War, the English government planned to lead the development of the higher education system.⁵² However, an appropriate system and adequate funds were required to support the expansion of higher education.⁵³ The Robbins Committee was established to discuss a plan for higher education expansion with the UGC and the Treasury.⁵⁴ The Committee presented the Robbins Report in October 1963. The Report argued that higher education should be available to all those who were qualified for it.⁵⁵ It set two targets for expansion: a growth of fifty per cent by 1967 and one of seventy per cent by 1980. The scale of expansion recommended by the Committee was large enough to catch the public interest.

The Robbins Committee also recommended raising the status of Colleges of Advanced Technology (CATs) to that of universities. The Committee expected that this separate development – academic universities and practical polytechnics - would strengthen technical education, which had been ignored in the universities. In 1965, CATs became polytechnics with university status. From 1966 polytechnics awarded degrees through the London External Degree system or the Council for National

Academic Awards.⁵⁶ Although the Department of Education and Science led their creation, the polytechnics were primarily under the local authorities. Therefore the government favoured the creation of polytechnics more than that of autonomous new universities; polytechnics could offer an alternative form of higher education – a practical curriculum which was more accountable than those of universities - still supporting the expansion of higher education system.⁵⁷ The notion of “higher education” began to be used to embrace technical colleges, teacher training colleges and universities.⁵⁸

After 1963, eight new technological universities were created in England and Wales, two institutes of science and technology were attached to Manchester University and Cardiff University, and thirty polytechnics were formed out of the remaining further education colleges.⁵⁹ All the new institutions were expected to increase the quality of higher education in applied science, engineering, technology and other professional fields. These new institutions successfully maintained the university standards while offering practical, commercial and industrial-oriented education.⁶⁰

The government’s policy on higher education after the Robbins Report reflected the changing political understanding about the science and technology education, as the government had recognised the education of engineers and technologists as among the main roles of universities. However, the government’s attitudes were still not intelligible enough to produce clear ideas, aims for science and technology education or a national plan for manpower.⁶¹ These vague and ambivalent attitudes of the government, sharing two different approaches to higher education undermined the development of science and technology education in universities.

The English government also found it difficult to strike a balance between encouraging a particular field of study (for example technical education) and respecting students' choice. The newly created universities offered multiple attractions to students, such as architect-designed buildings, green-field campuses and multidisciplinary courses. However, the Robbins Committee still struggled to encourage students to take up subjects such as applied sciences and engineering according to the target.⁶² In fact, the government failed to meet the first Robbins target, and under-achieved in recruiting students to science-related studies.⁶³ The Report was over-optimistic, reporting little understanding of the wider consequences of rapid and immense expansion of higher education.⁶⁴

Overall, the 1960s was the most important decade in the development of national higher education provision since the creation of civic universities in the 1870s and the 1880s. With the rise of new ideas about the Welfare State, the English government took over the responsibility for delivering higher education services. The government expected that the new higher education system would produce more technicians and engineers that could promote industrial development.

After the oil crisis of 1973, the English economy went through an economic recession. This led to another active debate on the relation between public spending on education and the contribution of education to the national economy. As the pressure on government expenditure grew, the accountability of education became an important political issue, and individual institutions were under pressure from the tightening funding from the government. Once again, the government began to look for new policies on higher education.

In 1979, the Conservative party came to power, and the new government reduced public expenditure and attempted to privatise public sectors such as the health

service, transportation and education.⁶⁵ English higher education institutions were also under pressure, as the government began to introduce market ideas. In the beginning, the Thatcher government was mainly concerned with the overall levels of public expenditure. For higher education, the first action taken by the government was removing all public subsidies for students from outside the European Community.⁶⁶ This immediately led to a decrease in the number of overseas students, by 40 per cent.⁶⁷ In the following year, general funding for higher education was reduced by 15 per cent. This cut was much more severe than what the UGC and the academics expected. Many universities had difficult times in managing within the expected income.⁶⁸ Institutions reacted in different ways to the reduction in general income. Some universities responded by reducing students' enrolments in order to maintain their reputation for high quality in education, while polytechnics, which competed for resources from the fixed resources tended to recruit more students in order to maintain their overall income.⁶⁹

In both universities and polytechnics, the previous passive attitude of the universities to foreign students changed, as their income from the fees of foreign students was free of government constraints.⁷⁰ Universities were even encouraged to advertise themselves in foreign countries.⁷¹ The percentage of foreign applicants for undergraduate places who were accepted in British universities increased from 24 per cent in 1970 to 36 per cent in 1986.

Following the public expenditure cuts of the early 1980s, the English government began to push higher education institutions to move into market competition.⁷² This market-oriented policy for higher education allowed the government to use public funding more efficiently, as higher education institutions were encouraged to compete for extra funds by achieving good results in both

teaching and research activities in the direction which the government perceived as desirable to support the national economy.⁷³

The underlying causes of the new policies on higher education implemented by Thatcher government can be understood in relation to the changing social and economic contexts of English society.⁷⁴ Firstly, English society was becoming very different in its ethnic and cultural composition. The homogeneity of society after the Second World War was challenged in the 1960s and the 1970s by the growing inflow of people from the Caribbean and the Indian sub-continent.⁷⁵ Secondly, the economic recession revealed the extent of the relative economic failure of English industry. The economic difficulties led to an active debate on the role of higher education in the national economy. The economic concerns of English politicians amplified the interest in public spending on education. Hence the key idea of the “Thatcherism” can be understood as a political way of solving these social and economic difficulties. The pressure on government expenditure made the accountability and efficiency of education into key political issues.

Neave analysed the changes in English higher education policy in the 1980s into three phases.⁷⁶ The first phase, in the first half of the 1980s, was characterised by the reduction of government spending on higher education. This resulted in the end of the rapid growth of the previous two decades. The second was the period when new mechanisms of public control over the output, cost and performance of individual institutions were set up. The power of the central administration increased during this period. As a result, the new system was described as an ‘interventionist state’ or an ‘evaluative state’. The third phase can be seen as a continuation and reinforcement of the second phase. The government called for a radical reform in the overall framework within which higher education had operated; for example, the 1988

Education Reform Act reinforced the idea of ‘opening up of higher education to the market’.⁷⁷

Overall, the market ideology was a major force in introducing changes in higher education that would have been unacceptable in the middle of the 1970s, and altered profoundly the way of thinking about the nature of higher education, and the relationships between the state and higher education, and between higher education and society.

The development of the market idea can be understood as a part of cultural tradition of the Anglo-Saxons.⁷⁸ The assessment of value in terms of the maximisation of profit became the dominant way of doing things in England. Despite the fundamental differences between the purposes of industry; profit making and the purpose of higher education; intellectual inquiry, the government’s intervention in higher education was accepted as the same economic value of education, maximising the role of higher education in achieving the national economic development.

The governmental intervention in higher education was also influenced by the growing global economic competition. Supplying a highly skilled, flexible and adaptable workforce was understood as a way of helping English industries, which faced the changing international market.⁷⁹ The growing international competition, the changing systems of production and competitive strategies brought further demands for qualified graduates in the occupational structure of employment in England.

There were criticisms against the application of economic values to higher education.⁸⁰ Firstly, higher education institutions have been seen as selling teaching and research services to the government. Secondly, there was no free market in English higher education. In some ways, institutions have become less free to make their own academic and financial decisions than they were at the beginning of the

1980s. In a market-led system, success can be measured by demand and by user satisfaction. However, in the absence of a free market, there is no clear way to determine the real worth of lecturers, departments, faculties, or institutions. Hence evaluation is based on the fulfilment of plans, student recruitment and other performance indicators developed by the government.⁸¹ Thirdly, radical changes in the structure and value in higher education could lead higher education to become only one of the varieties of 'knowledge businesses'.⁸² In any case, English higher education is under the great influence of the market ideology, as the competition for financial incentives is expected to increase the efficiency of the management of higher education with limited resources.⁸³

Thus it can be suggested that the introduction of the market ideology in the management of English higher education was developed to improve the accountability and the efficiency of the higher education system as a way of overcoming the economic recession faced by the Conservative government. The government developed controlling mechanisms, performance indicators and financial incentives in order to intervene in the management of higher education. Therefore the Welfare State policies in higher education, which had emerged in the 1960s, began to decline. Instead, the English government introduced the market ideology in the management of higher education, producing controlling mechanisms and intervening in the business of higher education institutions.

Finally, this chapter will discuss new forms of relations between higher education and industry. Cases of the collaborative relationship between university and industry will be investigated.

HIGHER EDUCATION AND THE ECONOMY: SCIENCE PARKS AND RESEARCH AND DEVELOPMENT CENTRES

This section will describe the development of university-industry relations. The creation of new universities and technical colleges in the 1960s had been geared to produce scientific manpower for national industries. Based on this expansion, new forms of research activities in science and technology such as university–industry partnership; Research and Development centres and Science Parks emerged.

Studies and reports pointed out the significance of the relationship between universities and industry for technological innovation and successful industrial development. For example, an OECD study in 1971 showed a high degree of correlation between national performance in technological innovation, the strength in fundamental research and the R&D performance of industry.⁸⁴ England ranked high among OECD member countries in terms of national indicators for innovative performance, including the absolute level of R&D activity, the output of physical and chemical abstracts, and the number of Nobel Prizes awarded to scientists; however, the national economy was performing less well than it should have been.⁸⁵ The poor quality of science and engineering graduates, the opposition of universities towards industry, and the image of engineering as a weak profession were pointed out as reasons for this under-performance.⁸⁶ Some senior industrial managers also pointed out that the weak educational role of English universities in comparison with those of England's competitors, Europe, North America and Japan was the main obstruction for further economic development.⁸⁷

In England, there were still some negative opinions on the university's role in the development of technology.⁸⁸ The cases of the United States and Japan showed that industry-oriented research activities in universities did not restrict the

achievement of high quality education in the same institutions.⁸⁹ Indeed, the quality of education and research and the level of industrial support for research contracts were closely related, as strong firms were looking for equally strong partners, as science parks around MIT and Stanford in the United States and Grenoble in France showed. When the members of the Science Sub-Committee visited the United States in 1975, they were impressed by the wide-spread practices of appointing senior academic scientists and engineers as non-executive directors of industrial companies.⁹⁰

Overall, in England, the lack of understanding between the university and industry had been a big obstacle in promoting collaboration between the two sides.⁹¹ The government also had overlooked the role of research and development in the process of innovation intended to promote industrial success.⁹² The level of English R&D spending as a percentage of GNP was not different from that in its main industrial competitors. However, a high proportion of government investment in R&D, for example over 80 per cent of Department of Trade and Industry spending in R&D in 1972-1973, was devoted to very large projects in the three fields of nuclear power, aviation and space, and the growth rate of industrially financed R&D in the 1960s was lower in England than in the Netherlands, West Germany or France.⁹³

Clearly, economic competition based on the mass production of standard goods and services alone was not able to generate wealth.⁹⁴ The English government needed to improve not only university-industry research activities but also entrepreneurial skills. The Report of the Select Committee on Science and Technology urged governmental investment in order to raise the quality and status of scientific and technical studies; it argued that R&D was an essential prerequisite for innovation which could lead to the increase of production and profitability; it proposed critical conditions for successful economic improvement:⁹⁵

- a. The existence of R&D capability should be relevant to the needs of productive industry.
- b. The industrial managers should be able to recognise opportunities for utilising R&D.
- c. Sufficient capital to enable industrial management to utilise the R&D capability should be available.

By and large, foreign examples, especially the United States, Germany and Japan encouraged the English government to promote university-industry relations.

The government promoted new ‘enterprise culture’.⁹⁶ New ways of thinking and practices towards local industrial development emerged in England.⁹⁷ Special interest was initiated in utilising local resources to boost local economic development from the middle of the 1970s. Three particular areas attracted special interest:⁹⁸

- a. The promotion of small firms;
- b. The involvement of higher education institutions in development initiatives; and
- c. The pursuit of technology-based economic development.

Small firms could easily generate more investment and thus create more employment.⁹⁹ In local economic development, a university’s role could be distinctive, as the university could supply graduates, offer re-education programmes and transfer highly specialised know-how to industries.¹⁰⁰ Despite different internal and external circumstances, individual university shared common interests, a desire to be relevant and to have links with industries and wider community; and a desire to generate income from new sources, particularly through the commercialisation of their know-how.

Interactions between universities and their local areas had been going on in different ways.¹⁰¹ The university–industry relations, which began in informal settings developed into more established and organised formal relations creating “socio-

technical communities” in many areas.¹⁰² The relations intended to develop strong linkages between a university and its community, seeking to capitalise in various ways on universities’ special knowledge, laboratories and other facilities. Throughout the 1970s evidence was gathered that more organised and collaborative university-industry relations were needed for better industrial performance. More small and medium sized firms were encouraged to work with local universities.

In the next section, the development of science parks around Cambridge and Warwick will be described to exemplify the early university-industry relations in England.

The concept of a science park came from the United States, where 82 science parks in 28 states were already established in 1974.¹⁰³ The development of such parks, which provided not just industrial space with easy access to a university but a focal point for university-industry interaction, was significant for better economic performance.¹⁰⁴ In England, Cambridge, the M4 corridor running from the west of London to Bristol, Hampshire, Oxfordshire and Hertfordshire were known as areas which were highly successful in relating universities and local industries. Especially the rise of the science park in the Cambridge area became an outstanding model for other universities as a centre of science-based industry.

CAMBRIDGE UNIVERSITY AND LOCAL INDUSTRY¹⁰⁵

Cambridge University played a leading role in the establishment of local firms and high technology industries. Most local businesses were engaged in research, design and development, or in high value and low volume production.

The development of Cambridge Science Park was initiated in 1969 by the Mott Committee, which recommended an expansion of ‘science-based industry’ close

to Cambridge to take maximum advantage of the concentration of scientific expertise, equipment and libraries.¹⁰⁶ The first two high-technology companies in the area go back to the nineteenth century, but there was significant growth in recent years. By the middle of 1987, there were about 450 high-technology firms around the university. Employment growth has been 8 percent a year since the late 1970s. The overall impact on the labour market has been even greater, as the employment has multiplier effects. The existing local firms, other local organizations and Cambridge University were involved in setting up small firms. The clustering of small high-technology firms attracted further investment from other local resources, the university, banks and the business community.

The role of Cambridge University in the development of Cambridge Science Park was profound, especially in the early stage of the establishment. Firstly, the university could form a unique local intellectual culture, as it provided an environment for social and interdisciplinary contact within and between the entire academic research communities and the high technology and business communities. Secondly, the international excellence of the university in research, especially in the fields of science, medicine and engineering, could generate new business opportunities attracting the top brains in the field concerned. Thirdly, the university's traditional liberal attitude to its faculty respected the intellectual ownership of academics. The university allowed academics and staff to deploy their time and effort and to accumulate benefits from outside activities. It worked effectively with the collegiate structure of the university.

The emergence of Cambridge Science Park as a centre of high-technology industry was an outstanding example of successful English university-industry

relations. It embodied many of the features of the kind of local economic development that was widely desired elsewhere.

WARWICK UNIVERSITY AND LOCAL INDUSTRY¹⁰⁷

Warwick Science Park was very different from the Cambridge case. The University of Warwick is only about forty years old, and is located on the edge of the large Birmingham-Coventry industrial conurbation (there are two universities in Birmingham and one former polytechnic in Coventry). In 1988, the university was medium-sized (6,000 students, half the size of Cambridge) and had no medical faculty, and the proportion of students in pure and applied science was about 33 per cent (Cambridge has about 50 per cent). The university has a non-collegiate system. The central administration, with a group of senior academics, developed a strategic management system.

Birmingham-Coventry was the leading centre of general engineering, notably including vehicle production, in the country. But the collapse of the national motor vehicle industry from the 1970s changed the local industrial situation.

In 1980, the university already began to consider the weakness of financial support from the central government. These worries were realized in the national cuts in higher education in 1981. The university had to solve the problems of declining resources and staff demoralization to maintain its dynamism.

The University of Warwick needed to seek new financial resources. It took many new initiatives for attracting and retaining first-rate academic staff, as well as orienting its research and applying its know-how to the needs of the outside world. The university created a climate in which individuals and specialists units encouraged outward-looking minds and an entrepreneurial spirit to generate and bring extra

financial benefits to the university. A number of key academics were appointed and an industrial development office was created for a central administration. In contrast to Cambridge, the administration controlled the outside activities of the staff. The university holds intellectual property rights and negotiated a share of any exploitation benefits with the individual academics.

The University of Warwick was drawn into considering the establishment of the science park to regenerate Coventry and the wider sub-region. The development of a science park bordering to the campus was expected to facilitate transferring of its know-how and research into industry, and fostering the growth of knowledge-based industry in the area. By the early 1987, around 35 companies were set up in the Park with a concentration in electronics and computer based manufacturing systems. The park provided outstanding facilities for departmental-company research collaboration. Its development contributed to the university's capability and prominence in the manufacturing and engineering areas. Another remarkable achievement in collaboration research work was biotechnology. A new Institute of Biotechnology was opened. The expectation that this would enhance the existing links and the potential for new links with industrial partners across a wider spectrum of biotechnological disciplines was high. The funding of the new institution was generated by a large contribution from the City of Coventry, which recognised the institution's long-term potential for stimulating new economic activity in the area. The park quickly became the leading element in the relation between the University of Warwick and local industry. The relation continued to open up new opportunities and acted as a powerful symbol of successful academic-industry links. The university identified itself as an important factor in the local economy, and was committed to contributing to the regeneration and growth of the local economy.

Warwick University clearly saw that the future of the institution depended on its relations with outside world, both through its links with industry and through playing an innovative role in the local economy.

Thus the two cases of development of science parks, around Cambridge University and Warwick University, reflected the growing importance of university-industry relations in the national economic development. The earlier weak relations formed by political initiative in the 1960s grew strong and developed into collaborative relationships from the 1970s. The economic influences of science parks in the early period were not obvious; however, the number of research centres and Science parks increased greatly in the 1980s.

Meanwhile, the international competition for the production of new knowledge was intensified. This meant that technology and knowledge transfer between countries became difficult. For example, South Korea, a newly developing country, found it harder than before to learn the advanced technology and skills necessary for the national economic development from the developed countries. Therefore, in both England and South Korea the political concern about national economic development and the growing international market competition encouraged the development of research and development centres and science parks around universities.

CONCLUSION

This chapter has examined the development of the English higher education system and the formation of new relationships between higher education, the state and the economy between 1963 and 1987. It has argued that the growing debates on the economic roles of higher education, in particular on the increased need to supply scientific manpower, influenced policies for higher education in this period.

In Chapter Two, the thesis proposed that it might be sensible to apply the Bridge Model to the examination of higher education in England and South Korea between the 1960s and the 1980s. The features – it was suggested earlier - of the Bridge Model are:

- i. The most important form of knowledge in higher education is scientific knowledge and technology. The economic influences on the choice of knowledge in higher education are growing.
- ii. Higher education plays wider roles in a society. In addition to education traditional elites, the production of economic elites and the supply of specialists to industries become important roles of higher education.
- iii. The state's role in the development of the national higher education system increases. The state influences public funding to higher education and takes over larger responsibilities for national higher education provision.
- iv. Higher education institutions make only modest contributions to the economy through general education and a small range of specific research activities.

This model can be used as an interpretative device for reviewing four themes: knowledge in higher education, roles of higher education, the state and the economy.

Knowledge in higher education

In the 1960s, the liberal education tradition in Oxford and Cambridge still continued. However, there was more political attention to scientific knowledge and technology than at the of the nineteenth century. Since the end of the Second World War, parliamentary reports – the Percy Report in 1945, the Barlow Report in 1946, and the 1956 White Paper – which concerned science and technical education, had been produced; these influenced the attitudes of the government, universities and industries. Especially given the wartime relationship between university research and industry, the government was keen to support the development of technical education for the enhancement of national security and wealth. There was an awareness of the

importance of scientific knowledge and technology which encouraged the promotion of science and technical education in old and new universities.

Roles of higher education

The creation of polytechnics and new universities in the 1960s supported the supply of graduates with science and engineering degrees. As English industries experienced rapid structural changes, semi-skilled and unskilled manual occupations decreased, while professional and high-technical occupations that required degree qualifications increased. The growth of higher education therefore served growing demands for higher education.

The state

The English government played a central role in the development of higher education after the Robbins Report of 1963. Considering the lack of political interest in higher education in the nineteenth century, there was a big improvement in the level of political interest in higher education. The government increased public funding for higher education, promoted science and technical education and led the creation of new technical colleges and universities. The new political interpretation of the economic value of higher education – as the production of human capital and new knowledge – began to affect the formation of higher education policies. Both the expansion policy in the 1960s and the serious cut in public funding in the 1980s were examples of the changes in the priorities of the national economy and the governmental effort to redefine appropriate roles of higher education.

The economy

The emphasis on the supply of scientific manpower and the production of scientific knowledge and technology for improved industrial performance led higher education institutions to move close to industry. Research centres and science parks

around universities were created to enhance national economic competitive power. The development of Cambridge Science Park as a centre of high-technology industry became an example of university-industry liaison for other universities in England.

Overall, the interpretation of the changes in English higher education between 1963 and 1987 by relating them to the four features of the Bridge Model worked reasonably well. Once new ideas about the economic roles of higher education were accepted, the changes in higher education speeded up. These changes will be examined in Chapter Seven.

In the next chapter, the thesis will examine how Korean higher education was developed during the same period.

ENDNOTES FOR CHAPTER FIVE

¹ The First World War showed the English dependency on knowledge and skills from foreign countries, especially on German skills. English industries, such as chemical, dyeing and munitions industries, went through a difficult time during the war against Germany. Gordon, P. Aldrich, R. and Dean, D. (1991), *Education and Policy in England in the Twentieth Century*, The Woburn Press: London, pp. 234-235.

² The Department of Scientific and Industrial Research was established to encourage scientific research in universities. It supported scientific inquiry, awarded research fellowships and coordinated government and university research activities. Gordon, P. Aldrich, R. and Dean, D. (1991), *op. cit.*, p. 235.

³ Universities as 'self-governing corporations' had been free from direct government intervention. Therefore the Establishment of UGC in 1919 showed the increasing political attention to university education for the nation. The UGC had firstly the role of advising the government; secondly and more importantly it distributed government funds to universities. Carswell, J. (1985), *Government and Universities in Britain; programme and performance 1960-1980*, Cambridge University Press: Cambridge, pp. 9-10.

⁴ The major income of universities came from fees, endowments, and grants from local authorities. Government funds through the UGC were about a third of universities' income. The funds slowly increased from the beginning of the Second World War and reached to two thirds of the total by 1946. However, the relatively small amount of government funds put universities out of the reach of parliamentary audit. Scott, P. (1995), *The Meaning of Mass Higher Education*, p. 15. see also Carswell, J. (1985), *op. cit.*, p. 11.

⁵ The English government protected universities' laboratories and personnel during the wars. The government ran a registration office, and protected men who held higher education qualification, especially in science. Students were allowed to carry on their studies. Some universities, colleges and university laboratories moved to safe areas. Sanderson, M. (1972), *The Universities and British Industry 1850-1970*, Routledge & Kegan Paul: London, pp. 339-341.

⁶ Professor Cockcroft and his team in Cambridge formed a connection with the Bawadsey Research Station in 1939, and this co-operative work encouraged further development during the Second World War. Professor Lindemann in Oxford and his team developed new methods for receiving and transmitting waves. These meant that the length of waves was reduced from 50 cm to 3 cm. Cambridge, Oxford and firms in the electrical industry achieved good results such as U-boat detection radar. Sanderson, M. (1972), *op. cit.*, pp. 341-342.

⁷ Professor Marcus Oliphant in Birmingham led the development of a transmitting valve for ultra short waves, and Bristol University and Wills Laboratories developed the Klyston valve. Sanderson, M. (1972), *op. cit.*, pp. 343-344.

⁸ In the first place, Professor Thompson in Imperial College, Oliphant and refugee scientists in Birmingham had already produced the idea of making a new kind of

bomb before the Second World War. Later, Cockcroft and Bragg in Cavendish in Cambridge, Francis Simon's group at Oxford, Rudolf Peierls at Birmingham and Sir James Chadwick with Otto Frisch at Liverpool joined in the research on atomic energy. Professor Norman Haworth at Birmingham brought industrial firms into the project, as it was decided to build a bomb using uranium in 1941. The university research teams and industrial scientists divided research work between groups. Sir James Chadwick led the Liverpool and Cavendish teams to work on nuclear fission, while Peierls at Birmingham worked on the mathematical and theoretical aspects of bomb assembly and performance. The Clarendon at Oxford worked on the production of enriched uranium 235. Sanderson, M. (1972), op. cit., p. 344.

⁹ The achievements of wartime industries were significant. Southampton worked on engines for war vehicles. Max Perutz in Cambridge solved the problem of the icing on the surface of ships in Arctic waters and devised a snow-fighting machine called "Weazel". The Manchester Faculty of Technology developed fabrics for webbing, parachutes, barrage balloons and camouflage. Sheffield University worked on steel and glass for aeroplanes. Imperial College worked on the production of drugs such as penicillin and the synthesising of vitamins. Sanderson, M. (1972), op. cit., pp. 345-346.

¹⁰ There was uneasiness in co-operative work between universities and industries. For example, industrial men preferred a single direction, and universities were the opposite. However, collaborative research was widely accepted, as scientists understood the long-term benefits of the liaison between universities and industries. Sanderson, M. (1972), op. cit., pp. 344-345.

¹¹ Ibid., pp. 346-347.

¹² The Second World War was often described as 'the physicists war'. The advanced knowledge in science and technology developed for military objectives influenced society after the war. Marwick, A. (1982), *British Society since 1945*, Allen Lane Penguin Books Ltd.: London, p. 25.

¹³ The reverberations of English society created the conditions for the rapid growth of the demand for higher education. Universities came to be seen as national institutions. Scott explains these conditions as a combination of the final establishment of democracy through universal suffrage after the First World War and the creation of the welfare state after the Second World War. Scott, P. (1995), op. cit., p. 14.

¹⁴ Gorden, P. Aldich, R. and Dean, D. (1991), op. cit., p. 236.

¹⁵ During the war the political interest in state education was continued. Educational policies were developed as part of social service programmes; for example, schools provided free milk, meals and medical and dental screening. The changing politics and the concern for the welfare state formed post-war educational provision. Lawrence, I. (1992), *Power and Politics at the Department of Education and Science*, Cassell: London, pp. 7-8.

¹⁶ The President of the Board of Education, R. A. Butler, introduced free universal secondary education for all in the 1944 Act. Barber, M. (1994), Power and Control In Education 1944-2004, *British Journal of Educational Studies*, Vol.42, No.4, p. 352.

The prime concern of the 1944 Act was the re-formation of secondary education. However, Berdahl explains its significant influences on English higher education. He points out that educationally the Act increased the number of students qualified for university entrance, administratively the Act increased the government's involvement in the development of higher education and politically the Act motivated debate on social equality in terms of university education. Berdahl, R. (1959), *British Universities and the State*, University of California Press: Berkeley and Los Angeles, Cambridge University Press: London, p. 71.

¹⁷ A new balance between the central government, local governments and the teaching profession was created, as more power was given to the Minister to direct educational policies. Barber, M. (1994), Power and Control In Education 1944-2004, *British Journal of Educational Studies*, Vol.42, No.4. p. 352. However, the strengthening of the central power did not mean that the English education system was centralised. It was still appropriate to describe the system as a decentralised educational service under the local authority and the influences of teachers. Ranson, S. and Tomlinson, J. (eds.), (1986), op. cit., p. 2 and p. 193.

¹⁸ According to the UGC recommendation, the government initiated an investigation of the national needs for new types of specialists and raised the government's grant to universities. Berdahl, R. (1959), op. cit., p. 70.

¹⁹ The Ministry of Education / Chairman: Lord Eustace Percy, (1945), *Higher Technological Education: report of a special committee*, H.M.S.O.: London, p. 6.

²⁰ Argles, M. (1964), *South Kensington to Robbins: An Account of English Technical and Scientific Education since 1851*, Longmans: London, pp. 85-87.

²¹ The Barlow Report clearly stated that to maintain its position in the world and to restore and improve the standard of living after the war, Britain needed to increase its production of scientists. Even if Britain doubled its output of scientists, it would still fall short, compared to a number of European countries and the United States of America. Lord President of the Council, (1946), *Scientific Man-power: report of a committee appointed by the Lord President of the Council/ presented by the Lord President of the Council to Parliament by command of His Majesty*, H.M.S.O.: London, pp. 3 and 22-23.

²² Berdahl, R. (1959), op. cit., p. 75.

²³ For example, Halsey recognised the contribution of studies of the humanities to the development of Western intellectual culture. However, he pointed out that this overpowering tradition of the older disciplines should not restrict the achievement of modern applied science, as society was in transition from an aristocratic/feudal to an industrial/technological society. Halsey, A. H., (1958), *British Universities and Intellectual Life*, *University Quarterly*, Vol. 12, pp. 141-142.

²⁴ Scott argues that these attempts were the first evidence of the Whitehall's interest in technical education and in the technical colleges that was later developed to polytechnics in the 1960s. Scott, P. (1995), op. cit., p.16.

²⁵ Argles, M. (1964), *ibid.*, p. 107.

²⁶ Bailey, B. (2002), Further Education, in Aldrich, R. (ed.), *A Century of Education*, Routledge: London and New York, p. 63.

²⁷ Cowen, R. (1991), The Management and Evaluation of the Entrepreneurial University: the Case of England, *Higher Education Policy*, Vol. 4, No.3, p. 10.

²⁸ Moore, P. G. (1989), Marketing Higher Education, *Higher Education Quarterly*, Vol.43, No.2, p. 109.

²⁹ McCulloch, G. *et al.*, (1985), *The Technological Revolution? : The Politics of School Science & Technology in England & Wales since 1945*, the Falmer Press: London and Philadelphia, p. 15.

³⁰ McCulloch, G. *et al.*, (1985), *ibid.*, pp. 15-16.

³¹ McCulloch, G. *et al.*, (1985), *ibid.*, p. 16.

³² Sanderson, M. (1972), *The Universities and British Industry 1850-1970*, Routledge & Kegan Paul: London, p. 364.

³³ *Ibid.*

³⁴ *Ibid.*

³⁵ Sanderson, M. (1972), op. cit., p. 367.

³⁶ *Ibid.*, p. 366.

³⁷ *Ibid.*, p. 365.

³⁸ *Ibid.*

³⁹ The Conservatives, who were in favour of investment in 'big science', had supported the expansion of higher education since the 1950s, and Lord Taylor had led the study group for the party in the pre-Robbins period. The Labour Party emphasised science for industry. Sanderson, M. (1972), op. cit., pp. 383-386.

⁴⁰ Ranson, R. and Tomlinson, J. (eds.), (1986), *The Changing Government of Education*, Allan and Unwin: London, p. 9.

⁴¹ The comparable growth rates for higher degrees in British universities were 285 per cent for all subjects, 150 per cent for science and 300 per cent for engineering between 1963 and 1974. House of Commons, Select Committee on Science and Technology, (1976), Third Report 1975-1976, University Industry Relations, p. 17.

⁴² Ibid.

⁴³ House of Commons, Select Committee on Science and Technology, (1976), op. cit., p. 19.

⁴⁴ Ibid., pp. 19-20.

⁴⁵ Ibid., p. 23.

⁴⁶ The Secretary of State for Education and Science, Mr. Mulley, made this speech. The Department of Industry also commented on the declining quality of graduates who were entering industries. Ibid.

⁴⁷ The government also faced a growing youth unemployment problem. The Manpower Service Commission (MSC) attempted to develop new educational training policies for young people. Shirley Williams, the Secretary of State and Sir James Hamilton (Minister and Permanent Secretary) began a remarkable policy launch in 1976-1977. Mark Carlisle promoted the idea of 'surplus capacity', and initiated changes in examinations at 17+ and 18+. Ranson, R., and Tomlinson, J. (eds), (1986), op. cit., p. 194.

⁴⁸ House of Commons, Select Committee on Science and Technology, (1976), *Third Report 1975-1976, University Industry Relations*, p. 20.

⁴⁹ The responsibility of the English government grew, for example the government was involved in leading curriculum development, institutional agreements, teacher training, methods of examining and reporting on schools to improve the quality of educational services. Ranson, R., and Tomlinson, J., (eds), op. cit., pp. 6-8.

⁵⁰ Ranson, R. and Tomlinson, J. (eds), (1986), op. cit., p. 9.

⁵¹ Op. cit., p. 196.

⁵² After the Second World War, the expansion of English higher education was foreseeable, as the birth rate increased and secondary education was expanded. The government set out a development plan for higher education. However, rapid economic changes and the lack of resources made it hard to implement any development plan of the higher education. Ranson, R. and Tomlinson, J. (eds.), (1986), p. 4.

⁵³ The Report of the Anderson Committee on *Students' Grants and Public Funds* in 1960 said that everyone who could get into full-time higher education should have a grant. The Robins Report developed this idea and said that "everyone who wanted higher education and reached the required standards should have a place to go". This recommendation became one of key principles in the higher education policy of the government. Carswell, J. (1985), op, cit., pp. 23- 25.

⁵⁴ Ibid., pp. 19- 21.

⁵⁵ The Report was one of the great state papers of the century. Ibid., p. 38.

⁵⁶ Sanderson, M. (1972), op. cit., p. 368.

⁵⁷ Scott, P. (1995), op. cit., p. 17.

⁵⁸ The expansion of the higher education system meant the creation of not only a system but also a public system of higher education. Therefore Robbins enlarged the notion of higher education to embrace the leading technical colleges, and teacher training colleges as well as the universities. Ibid.

⁵⁹ None of the new universities, however, were entirely new institutions. House of Commons, Select Committee on Science and Technology, (1976), op. cit., p. 26.

⁶⁰ The aim of the new institutions was the expansion of education in applied science and engineering. Nonetheless, practical subjects, such as business and social studies, town and country planning and modern languages, were also expanded. The new institutions introduced commercial and industrial-oriented education, for example sandwich courses. Ibid., p. 27.

⁶¹ Ibid., p. 28.

⁶² The Committee was eager to expand higher education in the context of demographic, economic and social changes. However, it was difficult to keep the large scale of the proposals in the end. It was also difficult to expand particular subjects such as science and engineering against the personal desires of students. Moore, P. G., (1989), op. cit., p. 110.

⁶³ House of Commons, Select Committee on Science and Technology, (1976), op. cit., p. 28.

⁶⁴ The Report said that “everyone who wanted higher education and reached to the required standard should have a place to go”. However, it failed to explain clearly the idea of widening equal opportunity in higher education or the conditions for the expansion. Carswell, J. (1985), *Government and Universities in Britain; programme and performance 1960-1980*, Cambridge University Press: Cambridge Government and Universities, pp. 39-40.

⁶⁵ Government interest in privatisation is primarily a result of the high and increasing costs of higher education. Privatisation proposals are often accompanied by economic recession or down-turns, as was the case in the UK and Australia. Clark, B.R. and Neave, G.R. (eds.), (1992), *The Encyclopaedia of Higher Education*, Vol. 1 National Systems of Higher Education, Pergamon Press: Oxford. New York. Seoul. Tokyo, p. 1446.

⁶⁶ Williams, G. (1997), The Market Route to Mass Higher Education: British Experience 1979-1996, *Higher Education Policy*, Vol.10, No.3/4, p. 276.

⁶⁷ Moore, P. G. (1989), Marketing Higher Education, *Higher Education Quarterly*, Vol.43, No.2, p. 113. See also Williams, G. (1992), An Evaluation of the New Funding Mechanism in British Higher Education: some micro economic and institutional management issues, *Higher Education Europe*, Vol. 17, No. 1, p. 68.

⁶⁸ Bird, R. (1994), Reflections on the British Government and Higher Education, *Higher Education Quarterly*, Vol.48, No.2, p. 76.

⁶⁹ Williams, G. (1997), op. cit., p. 276.

⁷⁰ Williams, G. (1992), An Evaluation of the New Funding Mechanism in British Higher Education: some micro economic and institutional management issues, *Higher Education Europe*, Vol. 17, No. 1, p. 68.

⁷¹ By 1985, 65 per cent of universities had some financial incentives to encourage individual departments to make the effort to recruit more foreign students.

⁷² The term 'privatisation' is used to describe recent and recurrent aspects of the perennial questions of finance and control of higher education. The usage presumably derives from the description of government activities in both social democratic and socialist states involving the selling of government agencies, assets and services, and the encouragement of private enterprise. Faced within the steadily rising cost of mass higher education, many governments have sought to relieve the burden on the public purse, and perhaps increase education's social and economic efficiency, by permitting and even encouraging the growth of private higher education and/or by introducing such private sector, market-oriented practices as tuition fees, sale of goods and services and the encouragement of individual and corporate philanthropy. Clark, B.R. and Neave, G.R. (eds.), (1992), op. cit., p. 1445.

⁷³ William, G. (1997), op. cit., pp. 279-280.

⁷⁴ Barber, M. (1994), Power and Control in Education, *British Journal of Educational Studies*, Vol.42, No.4, pp. 354-356.

⁷⁵ In 1944 and 1945 England there was social solidarity after the war. However, the increasing immigration from Caribbean and Indian sub-continent in the 1950s and the increasing influence of international mass media in the 1960s and 1970s challenged the homogeneity of English society. Barber, M. (1994), *ibid.*, pp. 354-356.

⁷⁶ Neave, G. (1990), On Preparing for Markets: Trends in Higher Education, *European Journal of Education*, Vol. 25, No.2., p. 106.

⁷⁷ Neave, G. (1990), op. cit., p. 107.

⁷⁸ Tasker and Packham use the term 'industrial ethic' for the explanation of the market ideology in higher education. They argue that one of the characters of the Anglo-Saxon is the 'industrial ethic' that has emphasised the maximisation of profit. They also believe that this Anglo-Saxon model is associated with unlimited growth, involving the production of more goods, the exploitation of raw materials and the penetration of

markets with minimal constraints on competition. Tasker, M. and Packham, D. (1994), Government, Higher Education and Industrial Ethic. *University Quarterly*, Vol.48, No.3, p. 180.

⁷⁹In numerical terms, current graduate output is more than the demand from employers. However highly skilled graduates are still in demand because some economically successful countries, such as Japan and Taiwan, have large graduate populations and a high proportion of the age cohorts passing through higher education. Keep, E. and Mayhew, K., (1996), Economic Demand for Higher Education- a Sound Foundation for Further Expansion? *Higher Education Quarterly*, Vol. 50, No.2, p. 92.

⁸⁰ Williams, G. (1994), op. cit., pp. 283-285.

⁸¹ Despite the marketisation of higher education, there is no mention of rates of return on courses, and no mention of profits or losses with reference to specific units within degree programmes. Therefore Ryder argues that there is little relationship between student enrolment on a given course or course unit and financial reward, or between lecturers' or departmental productivity and financial reward. Ryder, A. (1996), Reform and UK Higher Education in the Enterprise Era, *Higher Education Quarterly*, Vol. 50, No.1, p. 65.

⁸² Tasker, .M. and Packham, D. (1994), Changing Cultures? Government Intervention in Higher Education 1987-1993, *British Journal of Educational Studies*, Vol.42, No.2,, p. 160.

⁸³ Williams, G. (1997), op. cit., p. 276.

⁸⁴ House of Commons, Select Committee on Science and Technology, (1976), op. cit., p. 74.

⁸⁵ Ibid.

⁸⁶ In fact, England was not poor at innovation. It was other factors, such as poor entrepreneurship and the lower quality of management skills, that were affecting the performance of English industries. House of Commons, Select Committee on Science and Technology, (1976), Op. Cit., pp. 74-75.

⁸⁷ House of Commons, Select Committee on Science and Technology, (1976), ibid., p. 74.

⁸⁸ Some argued that universities should concentrate on the primary goal, the expansion of common knowledge, and leave the transfer and application of knowledge to other systems, as the direct contribution of the university-industry co-operation was only minimal. Stankiewicz, R. (1986), *Academics and Entrepreneurs developing university-industry relations*, Frances Printer (Publishers): London, pp. 5-8.

⁸⁹ OECD, (1986), *Industry and University: New Forms of Co-operation and Communication*, OECD: Paris, pp. 17-18.

⁹⁰ House of Commons, Select Committee on Science and Technology, (1976), op. cit., p. 59.

⁹¹ Whether university-industry collaboration would bring direct industrial improvement or not, the university-industry relation was important, as it could bring industrial minds to university research centres. To promote academic-industrial collaboration in research, the CBI suggested five key points: 1) personal assistance from industry with university activities, 2) use of university staff and facilities, 3) joint activities, 4) positive roles of “third party” and 5) financial support from industry for university activities in the report. House of Commons, Select Committee on Science and Technology, (1976), op. cit., pp. 55-57.

⁹² House of Commons, Select Committee on Science and Technology, (1976), op. cit., p. 77.

⁹³ Ibid.

⁹⁴ Halesy, A. H. *et al.*, (eds.), (1997), *Education- Culture, Economy, and Society*, Oxford University Press: New York, p. 5.

⁹⁵ House of Commons, Select Committee on Science and Technology, (1976), op. cit., p. 78.

⁹⁶ Manpower Service Commission, (1988), *Universities, Enterprise and Local Economic Development: An Exploration of Links, based on experience from studies in Britain and elsewhere*, HMSO, p. 6.

⁹⁷ In fact, it was not only England but also many other places in Europe and America that were concerned about local economic development and the nature of employment. Manpower Service Commission, (1988), *ibid.*, p. 5.

⁹⁸ Ibid.

⁹⁹ A new philosophy that ‘small is beautiful’ and the new market - technology structure changed the hostile attitude to small firms and highlighted their potential economic benefits, as more individuals could engage with their own businesses. For example, in the United States around two-thirds of new jobs were created by small firms with less than twenty employees during 1969 - 1979. Ibid p. 6.

¹⁰⁰ Ibid., p. 7.

¹⁰¹ Ibid., p. 8.

¹⁰² OECD, (1986), op. cit, pp. 20-21.

¹⁰³ Most American science parks were large in size, about 650 acres, and employed large numbers of qualified staff. Most of them were not restricted to science-based companies, and some of them became general agglomerations located near

universities. House of Commons, Select Committee on Science and Technology, (1976), op. cit, p. 62.

¹⁰⁴ Segal Quince, (1985), *The Cambridge Phenomenon: the growth of high technology industry in a university town*, Segal Quince & Partners, p. 9.

¹⁰⁵ Manpower Service Commission, (1988), op. cit., pp. 13-19.

¹⁰⁶ www.cambridge-science-park.com

¹⁰⁷ Manpower Service Commission, (1988), op. cit., pp. 21-24.

CHAPTER SIX

HIGHER EDUCATION AND NATIONAL DEVELOPMENT: SOUTH KOREAⁱ

The purpose of Chapter Six is to describe the new higher education system in South Korea and its relation to the state and the economy during the period of rapid national development (1961-1992).

The chapter will highlight the particular characteristics of the national development strategy which influenced higher education's relation with the state and the economy. Firstly, it will describe how the American Military Occupation and the Korean War affected the rise of democratic features, ideas and purposes in Korean higher education in the 1960s. Secondly, the chapter will examine how the Korean government directed the development of higher education as a powerful engine for continuing economic development, forming a tight relation between higher education and the state.

This chapter argues that the rise of the developmental state (with the development of a powerful national growth strategy, which was fully discussed in Chapter Two) created a particular relationship between higher education, the state and the economy in South Korea. The centralised government redefined the role and the purpose of higher education and mobilised higher education for national economic development.

ⁱ In this thesis, Korea refers to South Korea unless otherwise specified.

CREATION OF A NEW HIGHER EDUCATION SYSTEM IN SOUTH KOREA

This section will introduce a brief account of the post-war years – those of the American military occupation and the Korean War- which influenced the features of the new higher education system in South Korea. The political decisions made in this period affected the choice of knowledge and the role of higher education.

The American Military Occupation

The political situation of the Korean peninsula changed rapidly as the Second World War ended. The troops of the USA and the Soviet Union entered the Korean peninsula as World War Two ended in order to disarm the Japanese.¹ However, conflicts between the two countries and competition for world leadership soon emerged and affected the development of a new government.² The American military governed the southern part of Korea until the independent South Korean government was established in 1948.

The American Military Office (AMO) had challenging tasks in the governance of the southern part of Korea.³ There were no trained American personnel or resources of information about Korea which were vital for the military office seeking to engage in civil administration.⁴ Most of the American officers were transferred from Japan to Korea by an overnight arrangement, and officers were not aware of the Korean culture or language.⁵ The AMO therefore, had no other choice but to rely on the existing colonial governing bodies and pro-Japanese Koreans who were working in Japanese offices. This practical decision meant for Koreans a certain degree of continuity with the old colonial government, only under a different name. In addition, the AMO's priority in the Korean peninsula was the prevention of the extension of the communist ideology to other countries and of the territorial expansion of the Soviet

Union.⁶ The United States did not want the Korean peninsula to fall under the influence of the Soviet Union. The best strategy for the United States was to deal with Korean issues at international negotiating tables, while keeping the south of Korea under American influence at least.⁷ The poorly prepared occupation and the passive attitudes of the AMO at the beginning of the occupation determined the direction of the governance of South Korea.

There were also serious issues about the position and the role of the American military in Korea. The arrival of the Americans as an occupation force excluded Koreans from the international negotiations which decided the future of the Korean peninsula.⁸ The American military government did not recognise the legitimacy of the Korean Refugee Government, which was the centre of national independent movement, in Shanghai during the colonial period, and national leaders who worked for Korean independence in China, Japan and the United States.⁹ For example, Kim Ku, who led the Refugee Government and formed a committee for nation-building with other leading figures,¹⁰ was excluded from the American Military Government's (AMG's) political circle, which consisted of pro-American Koreans who were educated in the United States.¹¹ This damaged the trust in the relationship between Korea and America, and the role and the position of the American military in Korea became problematic and unstable, bringing dissonance in the Korean-American relationship.

After the break down of the First American-Soviet Conference, positive changes were made in the Korea American relationship from the summer of 1946.¹² The United States realised the critical difference in its political interest in the Korean peninsula from that of the Soviet Union, and hence reviewed the Korean-American relationship. The AMG made positive moves announcing support for firstly an

independent Korea and the building of a democratic society as a member of the United Nations, secondly, the establishment of a democratic Korean government and thirdly, aid programmes for education and economic development.¹³

The emerging power conflict between the United States and the Soviet Union created a new world order, dividing the world according to their different political and economic ideologies.¹⁴ The Korean peninsula became important in this conflict as a front line of the Cold War in the Asian region. Ultimately, the co-trusteeship of the United States and the Soviet Union as accepted by the United Nations brought the enduring partition of the Korean peninsula.¹⁵

Thus it can be suggested that the American occupation of the south the Korean peninsula during the years 1945 to 1948 was critically important, as democratic political ideas and governing systems based on the American model were introduced to South Korea. The role of the AMO in South Korea became crucial as South Korea's dependency on the United States and its foreign policies in the East Asian region increased.

The Bureau of Education (the *HakMuKook*) was developed into the Department of Education later in 1946.¹⁶ The American democratic ideas and the basic forms of American governing systems, including new provision for education – a state-led curriculum and teacher training colleges for example - were transmitted to South Korea.¹⁷ Two Korean advisory committees on education were created.¹⁸ The key members were Kim Sungsu, Yoo Ukgeom, Baik Nakjun, Kim Halran and Oh Chunsuk, and they appointed new teachers and officers for the Ministry of Education.¹⁹ The committees were supporting bodies to form the new education system in the transition from the AMO to the first independent government in South Korea. However, they had more significant implications for the formation of new

political and social elites. As Chapter Four explained, the traditional elites were sons of the scholars who were educated in Confucian knowledge. However, most of the committee members were not from the traditional elites, as they were educated with Western knowledge in American universities. This situation was an important in understanding the changes in the formation of new kinds of elites in South Korea, as socialists or communist were excluded from the committees during the American occupation.

The American influences on education in Korean schools were also important. A new school curriculum, covering the Korean language, history, geography and ethics, was carefully developed.²⁰ The roles of the Ministry of Education grew rapidly to serve the increasing demands for education.²¹ Although the government struggled with the lack of funds for education, the expansion of primary education supported the expansion of secondary and higher education in the following years.²²

The Higher Education Plan: the University Regulation and the Degree Regulation in 1946 formed the basic provisions of the new higher education system.²³ From 1946 to 1948, the status of two-year colleges was raised to that of four-year colleges.²⁴ The basic shape of the academic system, the curriculum and the degree system were created.²⁵ The new system improved access to higher education.²⁶

However, the Korean War (1950-1953) interrupted the development of education. During the war, War-Time Union Colleges were set up and continued to provide education in temporary locations such as Pusan, Taegu and Kwangju.²⁷ After the war, the damaged schools and institutions were re-built with international aid from USAID and UN agencies.²⁸ About \$19 million was allocated for higher education.²⁹ Almost \$17 million was spent on rebuilding Seoul University as the national

university, another \$1 million was for rebuilding the Merchant Marine Academy, and the rest was for the creation of a business administration programmes.

After the war, a new policy for creating national universities was initiated.³⁰ The experience of the War Time Union Colleges encouraged the Ministry of Education to create new universities in each province under the management of the Ministry, to improve access to higher education in rural areas.³¹ In addition, new private universities were also created, which contributed to the expansion of higher education in a short period.³² Table 6.1 shows the expansion of higher education after the Second World War.

Table 6.1 Expansion of Higher Education Institutions and Number of Students

Year	Number of universities	Number of students
1945	19	789
1948	42	24000
1961	85 (4.5times)	101,040 (12.9times)

Source: Chung, Misuk, (1989), *A Sociological Analysis of the Structure of Educational Ideology in Early Educational Policy in Korea*, p. 155.

As Table 6.1 shows, the increase in number of universities between 1945 and 1961 was remarkable. Even the Korean War (1950-1953) did not stop the phenomenal growth of higher education.

The Korean War brought radical changes in Korean politics. The war encouraged the development of a strong and centralised governing system with emphasis on strengthening the national military power. It also increased anti-communism in Korean politics, and the government began to rely on the American model of a political system. All ideas related to communism or socialism were removed from Korean politics as well as from the educational curriculum. In a way, anti-communism was almost equated with democracy in South Korea, and as the so-called Korean democracy.³³ Thirdly, the war increased the Korean dependency on the United States in terms of national security and national development.

Thus the political events in the following decade after the end of the Second World War influenced the development of political ideas of South Korea and the relationship between Korea and the United States, and affected the value and the choice of knowledge in higher education. The education institutions and the curriculum, as they developed, became important political instruments to produce new kinds of educated elites with new ideas and knowledge.

In the next section, this chapter will examine the role of the government in the development of the new higher education system in the years between 1961 and 1992.

NEW HIGHER EDUCATION SYSTEM AND THE STATE

This section examines the development of distinctive relations between higher education and the state during the economic developmental period (1961-1992) in South Korea. In this period, South Korea was led by a military government that of Park Chunghee (1961-1979), and by neo-military governments: those of Chun Dowhan (1980-1987) and Roh Taewoo (1988-1992).

The first military government in Korea came to power through the 5.16 Military Coup in 1961.³⁴ Park's military group ended the political unrest, which was triggered by vote-rigging in the presidential election. Park's government focused on building a strong central government, and developed an authoritarian government system under his charismatic leadership.³⁵ Park's political priority was economic development, and he proposed long-term national economic development plans. The government had built the legal foundation of the new government and an infrastructure for economic development, and launched the first five-year national economic development plan in 1962.

The government also invested in educational development. In higher education, a series of new proposals for the consolidation of universities was presented in 1961, and reshaped the structure of higher education system.³⁶ The new proposals allowed the government to develop policies for controlling higher education institutions and to monitor their development.³⁷ For example, from September 1961, the government supervised the numbers of students and the size of departments in higher education institutions according to a Special Education Law.³⁸ The government focused on the improvement of the overall standard of higher education.

The government produced tightly controlling policies for higher education from the middle of the 1960s. Firstly, in 1965 the Law for University Student Numbers was introduced; this enabled the government to decide the size of higher education institutions and departments, and the numbers of students.³⁹ After the law was applied, from the academic year 1966, the annual growth rate of the higher education population was maintained at around 7.9 per cent until 1980. This was tight control in comparison with the growth rates of 29.0 per cent from 1945 to 1961 and 9.5 per cent during the years from 1981 to 1990.⁴⁰ Secondly, an enforcement ordinance of education law followed in 1966, and the law on entrance examinations for universities was introduced in 1969.⁴¹ These laws also provided the legal basis for the government to intervene in the student selection process.

Once the basic structure of higher education was formed, the government utilised higher education for national development. Firstly, the government promoted the national identity through a new education curriculum under the slogan of “modernisation of the country and renaissance of the nation”.⁴² South Korea had to rebuild its national solidarity as a democratic society, focusing the threat from North Korea. A new identity for a democratic citizens and new knowledge and skills

necessary for national development were integrated in course development. Secondly, the government encouraged the active participation of academics in policy development.⁴³ The role of higher education as a national think-tank was vital for the military government, as expert knowledge was in great need. Therefore, the government promoted academics to work for the government departments. It developed a close relationship between the state and higher education. The Korean tradition of scholar mandarins supported this development. Therefore higher education played significant roles in national development through its relationship with the military government.

The government's intervention in the selection process and the management of higher education institutions could bring practical benefits as the government could lead higher education to meet the national need for economic development. However, the government's monitoring of academics and students in higher education had political implications for the control of the educated elites and political opposition groups.⁴⁴ It also affected academic freedom and institutional autonomy.

Despite the government's effort to improve higher education, the quality of science education in universities was poorer than other areas in the early years. The government, therefore, focused on the development of vocational education at the secondary level. In fact, this strategy worked out well, as shown by the maturing of Korean industry as skilled and semi-skilled workforce (i.e. technicians) contributed to industrial development in the 1960s.⁴⁵

Although Park's leadership was successful in initiating national economic development, his government faced international and national challenges during the early 1970s. Firstly, Korea faced a growing trade deficit and increasing international competition from other developing countries in the Asian region.⁴⁶ The total level of

national imports increased rapidly as Korean manufacturing industries grew. The increasing oil price after the 1973 oil shock pressed an extra financial burden on the manufacturing industries. Thus international pressure against the Korean economy was imminent in the early 1970s. Secondly, the government encountered growing criticism of the authoritarian military regime.⁴⁷ Public voices asking for democratic political systems, free competition in business and a more equal distribution of wealth were raised.

Park suppressed these social and political demands and prolonged his control by introducing a radical reform in the governing system: the *Yushin* System, which allowed even tighter political oppression under the name of 'Korean Democracy'.⁴⁸ His new government became extremely authoritative and bureaucratic.⁴⁹ The government modified the development of the curriculum in education to promote the new idea of 'Korean Democracy'.⁵⁰

Thus the centralised control policy on education continued in the 1970s.⁵¹ The government strengthened civic education throughout the school curriculum to promote loyalty to the nation. For example, 'The Doctrine of the People', which was introduced firstly in 1968, was re-emphasised in the classroom to promote the national identity. A nation-wide campaign, the *Saemaul Undong* (the New Community Movement), was initiated in order to develop rural areas.⁵² However, it was also used to implement the new national identity through local community development, which was intended to raise the awareness of the community, the region and the nation.⁵³ In this movement, traditional values like loyalty and piety were intertwined with the new ideas of "Korean Democracy" and promoted through education and nation-wide political campaigns.

The government maintained the support for vocational secondary education

during the 1970s; it promoted education opportunities and career development by training students at schools for specific sectors of industries according to the Law of Industry Education Promotion.⁵⁴ Each vocational school was specialised and related to a specific field of industry to increase the efficiency of the training. Extra support for schools of mechanics, electronics and chemical engineering as well as traditional vocational schools such as those of agriculture, fishery and oceanography was given. This support was strongly related to the changing national economic policy of moving to heavy and chemical industrialisation in the 1970s. The number of vocational schools at upper secondary level increased by twenty five per cent during the 1970s; these supplied skilled workers (mechanics and technicians) for the heavy industries successfully.⁵⁵

A minor change was made concerning the quality of higher education.⁵⁶ The course requirement for the degree qualification was altered, and dual-major courses were introduced. The government also allowed a partial expansion in the number of students, to meet the demands of the growing industries.⁵⁷ The first distance higher education institution, the Korean Air and Correspondence College, was established in 1972 and offered higher education for those who were already at work.

With the improvement of the degree system, special attention was also paid to science and technology education and research in universities, as the national economy grew rapidly, moving into heavy and chemical industries in the 1970s. The government created a special fund for selected institutions to support research activities for these industries; and created the Korean Development Institute in 1971 and the Korean Education Development Institute in 1972.

Thus it can be suggested that Park's military government developed a very authoritarian governing system and centralised economic and education policies in the

1960s and the 1970s. The planning and the investment in education - the production of educated elites through higher education - were critical for successful economic development in a short period. The military government developed mechanisms for controlling academics and students, and utilised higher education to provide expert knowledge and highly educated civil servants for the military government in a way. However, the political intervention in the selection process of higher education and the anti-communism ideology restricted institutional autonomy in a great deal. Therefore it is important to note that the over-grown power of the central government affected the relationships between higher education and the state strongly and delayed the development of a civil society, which respects human rights, choices and a more equal distribution of wealth.

The strong government control of social, economic and education development supported the focused economic development, but on the other hand provoked public criticism over human rights. In the end, Park's government fell after his assassination in 1979.⁵⁸ After a hard political struggle, the new military government of Chun Doowhan came into power after hundreds of demonstrators were killed in Kwangju. The legitimacy of the government was challenged strongly by the public. The government therefore tried to shift public attention to economic prosperity and the improvement of the quality of life, with a new political slogan, "the embodiment of a welfare state and the improvement of fairness of society".⁵⁹

For education, the government introduced the Education Reforms (the 7.30 Reform), which focused on the improvement of the quality of national education provision.⁶⁰ It expanded the higher education sector, with a new degree system.⁶¹ The number of students enrolled in 1981 increased by 49 per cent. The government tried to reduce competition at entry level but increased the competition for degree

qualification under the name of quality control.⁶² However, the new system did not improve the quality of higher education, as it intended. The sudden expansion made the higher education institutions over-crowded and produced high graduate unemployment, with an oversupply of university graduates in the Arts subjects in particular.⁶³ Therefore the new higher education policy was not able to improve the quality or meet the changing industrial needs. Eventually, in 1985, the new degree award system was withdrawn and the expansion slowed down.

In the 1980s, Korean society went through a transformation with many aspects. The development of welfare policies by the government was a political choice. However, it also reflected the rise of civil society based on the successful economic development during the previous decades.⁶⁴ The growth of civil society raised interest in new values like differentiation, plurality and the diversity of interests of each individual and organisations. This social transformation influenced the changes in educational interests and in the government policy-making. Firstly, alternative educational ideas and principles were considered to improve the quality of the national education system.⁶⁵ Secondly, the power of the local authorities in policy development increased.⁶⁶ Therefore institutional autonomy and academic freedom in the student selection, curriculum development and the management of higher education institutions were increased. More financial supports were also available to local universities in order to assist their growth.

Although the overall size of higher education became stable from the late 1980s, some expansion in science and engineering departments continued to meet the growing needs of the advanced high technological industries, where there were still shortages in the supply of graduates. The 'Labour Supplying Proposal for Industry' was initiated, and the number of students in science and engineering departments

reached 46 per cent of all higher education students in 1995.⁶⁷

Thus the neo-military government in the 1980s also led the growth of higher education in South Korea. In addition, the government promoted science and engineering education in universities in order to meet the economic needs of the society. Higher education's relationships to the economy grew stronger. As the government-led development continued, the state intervention in the management of higher education grew, hindering the development of academic freedom and institutional autonomy in Korean higher education.

HIGHER EDUCATION AND NATIONAL ECONOMIC DEVELOPMENT

This section examines the relations between higher education and the economy during the rapid economic development period (1961- 1991).

South Korea was one of the poorest countries in the world at the end of the Second World War. As Chapter Four analysed earlier, the Korean economy at the end of the nineteenth century was dominated by agriculture. Korea experienced little growth of a modern market economy and only a proxy industrialisation under Japanese rule in the early decades of the twentieth century. Later, despite the high hopes for national development after the end of the Second World War, the Korean War (1950-1953) overshadowed national development once again. The economic damage caused by the Korean War was devastating.⁶⁸ Roads, bridges and buildings were damaged, one third of the housing in South Korea was destroyed, and 41 per cent of power stations, 43 per cent of factories and 50 per cent of coal mines fell down.⁶⁹ Despite the devastating war damage, the national economy recovered and grew by around 4.3 per cent annually, depending mostly on foreign aid until 1960.⁷⁰

The Park military government initiated a nationwide economic development plan in 1962, and launched the First Economic Development Five-year Plan of 1962-1966.⁷¹ The government reviewed the state of the Korean economy – the low national income, small national market and comparatively small population, and promoted export-oriented industries in order to make the most out of foreign capital.⁷² Table 6.2 on the next page shows the economic growth rates before and after the introduction of national development plans.

Table 6.2 Major Indicators of Korean Economic Growth (%)

	1939/40-1953	1954-1961	1962-1975
Annual growth			
Population	2.12	2.64	2.11
Per capita GNP	-0.87	1.58	7.51
GNP	1.11	4.34	9.78
Agriculture, forestry, fishery	1.88	3.42	4.75
Mining and manufacturing	-1.67	11.94	17.57
Social overhead	-	8.18	15.88
Service	-	3.35	6.85
Composition of GNP (%)			
Agriculture, forestry, fishery	47.3	40.2	25.7
Mining and manufacturing	10.0	15.2	29.1
Social overhead and service	42.7	44.6	45.2

Source: McGinn, N. *et al.*, (1980), *Education and Development in Korea*, p. 106.

Table 6.2 shows that in spite of political unrest after the war, the mining and manufacturing industries made good progress by 1961 and continued to grow in the following two decades. The average annual economic growth rate between 1962 and 1975 was about nine per cent. In manufacturing, the growth of the electronic industry from the 1960s was remarkable.⁷³ It began with a small assembly line and a cheap labour force producing goods for export, but grew bigger along with the expansion of the national market.

The government began to produce economic protection policies in order to support the implementation of the development plan. Firstly, the government altered

economic rules and regulations to create a flexible environment for foreign investors; for example, taxes on foreign companies and on imports of raw materials were reduced,⁷⁴ and the Law for Foreign Capital in 1965 increased foreign investment in South Korea.⁷⁵ Secondly, the government strengthened vocational education at the secondary level by introducing the Industrial Education Law, which supported the improvement of skill formation.⁷⁶ The government continued to attract foreign capital.

After the national economic development was launched, significant progress was made during the Second Economic Development Five-year Plan (1967-1971). The government established the Department of Science and Technology, the Institute of Science and Technology Research, and an Office for Science-Technology Education under the Ministry of Education.⁷⁷ These new departments were to encourage students to enrol in technical colleges or science departments in higher education. The timely investment in education along with the national economic development supported further economic growth by producing an appropriate skilled labour force.

Therefore the annual economic growth rate increased from 4.4 per cent (1953-1961) to 9.9 per cent during the years 1962-1970.⁷⁸ The manufacturing industries outperformed the other sectors. The percentage of manufacturing industries out of national production was only 16 in 1962, but grew to 21.7 in 1969. The growth rate of manufacturing industry was 17.3 per cent, which was much higher than those of agriculture and fisheries (6.0 per cent), and service industries (11 per cent) during the years 1962-1970. The Korean economy also grew stronger in the international market. The national exports increased from \$41 million in 1961 to \$5,081 million in 1975.

The annual growth rate of GNP was therefore 7.8 per cent during the years 1960-1966, and increased again to 10.0 per cent between 1972 and 1975.⁷⁹

Thus the combination of strong political leadership, the focused government-led economic development plan and the supply of educated manpower began to produce positive results in the initial phases of national economic development.

The fast-growing manufacturing industries and the export-oriented economic development brought changes in the employment pattern, as shown in Table 6.3.

**Table 6.3 Distribution of Employment by Occupation
Within Educational Attainment Groups, 1960-1970**

Occupational group	Distribution by years of schooling					
	0	1-6	7-12	13+	total (%)	total (1,000s)
1960						
Professional and technical	-	1	10	34	2	166
Administrative	-	1	4	6	1	90
Clerical	-	1	11	22	3	183
Sales	6	9	12	9	8	577
Production process workers	8	18	18	6	13	926
Service workers	3	7	11	10	6	414
Farmers and fishermen	82	62	33	12	66	4,613
Total	100	100	100	100	100	7,028
1970						
Professional and technical	-	-	5	30	3	323
Administrative	-	-	2	6	1	96
Clerical	-	1	13	31	6	593
Sales	6	9	16	12	10	1,028
Production process workers	8	24	33	11	22	2,198
Service workers	3	8	9	4	7	679
Farmers and fishermen	83	57	22	5	51	5,148
Total	100	100	100	100	100	10,153

Source: McGinn, N. *et al.*, (1980), *Education and Development in Korea*, p. 115.

Table 6.3 shows that the distribution of educated manpower in 1970 was more widely spread over the economic activities than in 1960; this change implied an improvement in overall access to education in only one decade. The employment of technicians,

engineers and managers had increased, and the number of people who were working in sales and on production lines also increased by 1970.⁸⁰

The improvement of the national education system continued to support successful economic growth in the 1970s. The government still maintained its export-oriented policy; however, it also began to invest in the development of heavy and chemical industries.⁸¹ The key economic policies in the 1970s were 1) growth-oriented, 2) based on government-led development plans and targets, 3) export-oriented, 4) utilising foreign capital, 5) giving protection for Korean companies, and 6) focusing on heavy and chemical industries.⁸² The creation of national industrial parks such as *Kyounjin* Industrial Park (near Seoul), *Masan* Free Export Park and *Kumi* Electronic Industrial Park in the South East succeeded in attracting foreign investment in South Korea.⁸³ Evidently, the continuing government investment and economic protection policies supported the growth of capital and business in Korea from the middle of the 1970s.

The development of protecting and supporting economic policies created a particular form of Korean entrepreneurs: *Jaebol*, in the 1970s.⁸⁴ Initially, the government's protection policies helped small companies to make strategic investments in electronic manufacturing industry for example, and to compete with foreign investors. These special deals for a small number of Korean companies and their focused investment in key industries contributed to the rapid growth of the national income and the expansion of those few companies. Therefore the small parts-manufacturing industry based on foreign capital in the 1960s grew rapidly larger, and could produce home electronics equipments such as radios and TVs in the 1970s. For example, Gold Star (the former name of LG) created the first electronic

manufacturing factory and Samsung began with a small factory in 1969. By 1974, there were nine electronic factories for LG and seven for Samsung. Since LG and Samsung have dominated the electronic industry in South Korea.⁸⁵ The Korean electronic industry grew stronger through mass production and competitive prices based on low wages.

The growth of the Korean economy in the 1970s was outstanding. National exports increased from \$11 million in 1971 to \$175 million in 1980.⁸⁶ However, the increasing oil price in the 1970s also raised the cost of imports from \$24 million to \$223 million during the same period. Despite the successful economic growth, a few worrying signs for the economy appeared, such as a high dependency on foreign capital and the development of a national market increasingly monopolised by a few *Jaebol*. The economic protection policies and *Jaebol*-oriented economic development began to cause the underdevelopment of small and medium-sized companies, damaged the development of free market principles, and created a strong bond between the political and the business elites. Therefore the strategic economic development plan supported economic growth but also became troublesome.

Thus overall, the initiation of state's economic protection policies such as promotion of key industries and tax benefits for entrepreneurs, which created a small number of large entrepreneurs, *jaebol*, supported the sustained industrial growth, large-scale industrial parks and the transition to more sophisticated industries. The growth of higher education and the implementation of powerful and intensive developmental strategies in particular supported a successful economic development.

The Korean economy continued to grow by about seven per cent annually from 1981 to 1984, despite the political crisis and the depression in the world

economy.⁸⁷ The continuous growth of manufacturing industries contributed to the GDP, which grew more than ten percent annually between 1984 and 1988.⁸⁸ Table 6.4 shows the growth of manufacturing output over the three decades after the Korean War.

Table 6.4 The Composition of Manufacturing Output in South Korea

Percentages of manufacturing output	1954	1970	1985
Light industries			
Food, beverages and tobacco	51	19	11
Textiles and clothing	19	20	17
Leather and footwear	2	1	2
Wood and wood products	4	4	2
Paper, printing and publishing	6	6	5
Heavy industries			
Chemicals and petroleum products	5	21	19
Non-metallic mineral products	3	7	4
Basic metals	1	5	6
Metal products	2	3	5
Machinery: non-electrical	3	2	5
Machinery: electrical	1	4	11
Transport equipment	2	6	8
Others	1	2	5

Source: Hewitt, T. *et al.* (eds.), (1992), *Industrialisation and Development*, Oxford University press: Oxford in association with the Open University: Milton Keynes, p. 124.

Table 6.4 shows that in the 1950s light industries for the domestic market were the dominant feature of the Korean economy but in the 1970s and 1980s capital-intensive heavy industries were developed. For example, the electronic manufacturing industry, which led economic growth in the 1970s, became more high-technology intensive in the 1980s.

As foreign investment decreased slowly from the end of the 1970s, *Jaebol* led the Korean market instead, developing new markets for industries like computers and semi-conductors manufacturing in the 1980s. The increasing investment in new technologies along with government-led investment supported the expansion of *Jaebol* like Samsung, Daewoo, Hyundai and LG successfully and improved their

competitive power in international market in the 1980s.

The shifting economic focus on advanced technology also increased the demand for high skills in the labour market from the middle of the 1980s. As the expansion of Korean higher education was led by the arts and humanities departments, the balance of the supply of graduates with national industrial need was not suitable.⁸⁹ Therefore the government reshaped higher education and reinforced professional training in order to supply appropriate manpower for the changing labour market from the middle of the 1980s.⁹⁰ For example, the expansion of junior technical universities was remarkable in the 1980s.

In fact, industries were in favour of graduates from junior technical universities as they could employ high skilled workers at lower wages than degree holders. The expansion of technical universities therefore not only supported the expansion of higher education but also served the changing labour market.

Table 6.5 Employment of Graduates from Junior Technical Universities

	Number of Graduates	No. of expecting employment	Number of employed graduates	Rates of Employment
1985	72,616	49,120	32,820	66.8
1986	76,814	50,355	35,446	70.4
1987	81,083	53,198	39,678	74.7
1988	82,409	55,737	42,506	76.3
1989	83,855	58,118	46,143	79.4
1990	84,762	62,523	51,861	66.8
1991	90,304	69,767	60,407	86.6
1992	102,523	80,750	69,340	85.9
1993	106,509	84,988	70,426	82.8
1994	124,011	100,129	81,993	81.9
1995	140,211	115,301	97,638	84.6

Source: KEDI (1996), *An Analytical Study of the Role of Education*, p. 239.

The expansion of junior technical universities was faster than those of universities in the 1980s. Table 6.5 shows the increasing rate of employment of

graduates from junior technical universities during the 1980s and the early 1990s. The number of students in these universities increased steadily, along with their improving employability. The government increased the investment in them, in accordance with the 'Labour Supplying Proposal for Industry', which promoted professional courses with liaisons with local industries.⁹¹ The government also provided financial support and encouraged curriculum development, cooperating with industry in order to improve the quality of higher education. The number of junior technical universities in rural areas also grew, with the support of the local educational authorities. The improved access to higher education boosted local industries and the growth of professional education in these universities encouraged vocational education both at secondary and tertiary level.

Overall, the economic growth in South Korea during the years between 1961 and 1991 was remarkable. The government-led fast economic development changed the key economic activities from labour-intensive light industry to high technology industry; the change affected the labour market. However, the excessive growth of *jaebol* also damaged the promotion of free market principles in South Korea and produced a union of political and economic elites with vested interests in monopolisation, which produced corrupt politicians. The serious power struggle among the different political groups also made it difficult to establish clear and positive developmental disciplines among the political and business elites.⁹²

Nonetheless, the Korean government developed a strategic economic development plan and also led education development which supported industrial changes. This phenomenon was described as a rise of a 'developmental state' and its effective economic development, a unique feature of national development of South Korea.

CONCLUSION

The chapter has examined the development of the new higher education system in South Korea and higher education's relations with the state and the economy between 1961 and 1992.

The Bridge Model was proposed in Chapter Two as a useful tool in understanding higher education in South Korea in this period. The key characteristics of the Bridge Model are:

- i. The most important form of knowledge in higher education is scientific knowledge and technology. The economic influences on the choice of knowledge in higher education are growing.
- ii. Higher education plays wider roles in a society. In addition to educating traditional elites, the production of economic elites and the supply of specialists to industries become important roles of higher education.
- iii. The state's role in the development of the national higher education system increases. The state influences public funding to higher education and takes over larger responsibilities for national higher education provision.
- iv. Higher education institutions make only modest contributions to the economy through general education and a small range of specific research activities.

These features of the Bridge Model can be used to organise a summary and an interpretation, focusing on four themes in the model: knowledge in higher education, the roles of higher education, the state and the economy.

Knowledge in higher education

The creation of a new higher education system based on the American model focused on general education in Korean universities. However, both anti-communism after the Korean War and the military government, under American hegemony, influenced the choice of knowledge. In the 1980s, the tight state control on academics and institutions loosened and governmental attention to scientific knowledge and

advanced technology increased. The promotion of science and engineering education in universities lowered the dependency on knowledge transmission from the States and Japan. The increased efforts for research and development strengthened the economy.

The roles of higher education

The role of higher education expanded steadily along with national economic growth. In the 1960s and the 1970s, universities produced “traditional elites” such as academics, doctors and lawyers. In the 1980s, higher education institutions began to supply a wider range of professional elites to meet the new demands that were a consequence of the specialisation of the labour market. In particular, the growth of technical colleges in the 1980s met the rapidly expanding needs for certain kinds of vocational higher education, and provided technicians and engineers for the growing industries like IT, electronics, mechanics and construction.

The state

The state played a critical role in the development of higher education institutions. The military governments shaped the growth of higher education within its policies for national economic development. The governments of the period employed powerful and centralised policies - national plans, economic protection policies, and the promotion of key industries by concentrated investment - which affected the relationships between higher education, the state and the economy.

The economy

A simple form of university-industry liaison began to develop in the 1970s. The government encouraged cooperative university-industry liaisons in order to improve the quality of education by offering students work experiences in the relevant fields of industry. The growth of national industrial parks such as *Kyoungin* Industrial

Park, *Masan* Free Export Park and *Kumi* Electronic Industrial Park and the rise of *jaebol* supported the development of cooperative university-industry relations in the 1980s.

Overall, the application of the Bridge Model was helpful for understanding the significant role of the state in leading higher education institutions to support national development between 1961 and 1992. However, the relationships between higher education, the state and the economy were already beginning to change, as economic globalisation increasingly pressured the Korean government to redirect higher education.

The dynamic but unsteady development of higher education by political intervention increased the adaptability to the changing political and economic environments surrounding higher education in South Korea. However, this instability slowed down the development of quality of education in higher education. By contrast, in England, once a new idea of higher education was accepted, the national system began to accommodate the binary provision of higher education (traditional university and polytechnics) effectively, offering high quality education for a variety of educational needs.

In the next two chapters, the thesis will investigate the recent changes in higher education institutions in England and South Korea.

ENDNOTES FOR CHAPTER SIX

¹ Oh, Wook-whan, (1996), *교육과 사회변동*, [Education and Social Change], Educational Science Publisher: Seoul, p. 178.

² Oh, Wook-whan, (1996), *ibid.*, p. 179.

³ The American Military arrived in Inchon, the Western port city of Korea on the eighth of September 1945. General A. V. Arnold was appointed as a minister of the military office on the 12th of September 1945. The American army arrived at Seoul on the following day and formed the American military government. The American military occupation and its governance in the south decided the future of South Korea – its political ideology, economic and education systems. Kim, Dongku, (1995), *미군정기의 교육*, [Education during the American Military Occupation Period], Munemsa: Seoul, p. 25.

⁴ The Americans had a clear plan for the occupation of Japan, but almost no plan for Korea. There were only a couple of American missionaries, like H.H. Underwood and J.E. Fisher, who understood Korean. Basically there was no training programme for soldiers for the occupation of Korea. For example, according to E.G. Meade's memoir, he had only a one-hour lecture about Korea before he was transferred from Japan to Korea. Kim, Dongku, (1995), *ibid.*, p. 34.

⁵ Adams, D. and Gottlieb, E. (1993), *Education and Social Change in Korea*, Garland Publishing, INC: New York & London., p. 17.

⁶ Lee, Kwang-ho, (1989), Educational Policy during the American Military Government, in Education Planning, (ed), *분단시대의 학교교육*, [School Education in the Partitioned Period (1)], Green Tree Publisher: Seoul, p. 31.

⁷ *Ibid.*

⁸ Oh, Wook-whan, (1996), *op. cit.*, p. 178.

⁹ Oh, Wook-whan, (1996), *op. cit.*, p.181.

¹⁰ Oh, Wook-whan, (1996), *op. cit.*, pp. 180-181.

¹¹ Han, Sungjin, (1989), A Study of the Korean Education Elite during the American Military Occupation and Educational Policy during the American Military Government, in Education Planning, (ed.), *분단시대의 학교교육*, [School Education in the Partitioned Period (1)], Green Tree Publisher: Seoul, p. 133. see also Oh, Wookwhan, (1996), *op. cit.*, p. 185.

¹² According to the reports from American officers in Russia, Japan and Korea, the Soviet Union intended to occupy the north of Korea for the long term, similar to the cases of Finland, Poland, and Rumania. Lee, Kwangho, (1989), *op. cit.*, p. 39.

¹³ Lee., Kwang-ho, (1989), *op. cit.*, p. 38.

¹⁴ Oh, Wookwhan, (1996), op. cit., pp. 183-184.

¹⁵ Adams, D. and Gottlieb, E. (1993), *Education and Social Change in Korea*, Garland Publishing, INC: New York & London., p.17.

¹⁶ KEDI, (1996), op. cit., p. 82. see also Kim, Dongku, (1995), *미군정기의 교육*, [Education during the American Military Occupation Period], Munemsa: Seoul, p. 129.

¹⁷ KEDI, (1996), *국가 발전에서의 교육의 역할분석 연구 (1): 연구 모형의 설정과 해방 이후 한국교육의 전개과정분석(1945-1995)*, [An Analytical Study of the Role of Education in National Development (1): the formation of a study model and the analysis of the development process of Korean education after liberation (1945-1995)], KEDI Press: Seoul, p. 82.

¹⁸ The Korean Committee on Education was established in September 1945, and set out short-term projects to revive school education until it was dismissed in May 1946. The Korean Committee on Education Planning was created in November 1945, and participated in major educational policies such as establishing the new purpose and aims of new education system, and produced new curriculum provision for schools and institutions. Lee, Kwangho, (1989), op. cit., p. 47.

¹⁹ KEDI, (1996), op. cit., p. 84.

²⁰ Kim, Dongku, (1995), op. cit., p. 107.

²¹ The educational opportunities for Koreans during the Japanese colonial period had been restricted. After the liberation there were high demands for education. For example, in 1939 for every 1,000 people, there were 143 enrolled Japanese students in primary schools, in comparison with only 55 Korean students. This gap was greater in the upper levels of schools. In secondary education there were 32.7 Japanese and 1.3 Koreans for every 1,000 people. Table A shows the sharply increasing numbers in primary education during the post-war period.

Table A. Number of entering primary school students and primary schools

Year	No. of students	Growth rate(%)	No. of schools	Growth rate(%)
1945	1,637,723	100	2,937	100
1946	2,159,330	132	3,172	108
1947	2,493,462	152	3,429	116
1948	2,426,115	148	3,443	117

KEDI, (1996), *ibid.*, p. 89. see also McGinn, N. *et al.*, (1980), op. cit., p. 81.

²² KEDI, (1996), *ibid.*, p. 103.

²³ KEDI, (1998), *한국 근대 학교교육 100 년사 연구 (3): 해방 이후의 학교 교육*, [A Study of the History of Modern Education after Liberation from Japanese Rule], KEDI Press: Seoul, p. 22.

²⁴ KEDI, (1998), *ibid.*, pp. 22-23.

²⁵ KEDI, (1996), op. cit., p. 94.

²⁶ The democratic values introduced from America influenced the development of the public education system that encouraged equal opportunity for all. McGinn, N. *et al.*, (1980), op. cit., p. 86.

²⁷ KEDI, (1985), *Korean Education 2000*, KEDI Press: Seoul, p. 33.

²⁸ Adams, D. and Gottlieb, E. (1993), *ibid.*, p. 24. and also see McGinn, N. *et al.*, (1980), *ibid.*, p. 89.

²⁹ McGinn, N. *et al.*, (1980), *ibid.*, p. 92.

³⁰ KEDI, (1998), op. cit., p. 24.

³¹ Before the Korean War, two thirds of Korean universities were located in Seoul. Adams, D. and Gottlieb, E. (1993), op. cit., p. 25.

³² KEDI, (1998), op. cit., pp. 26-27.

³³ Chung, Misuk, (1989), Sociological Analysis of the Structure of Educational Ideology in Early Korean Educational Policy, in Education Publishing Plans, (ed), *분단시대의 학교교육*, [School Education in the Partitioned Period (1)], Green Tree Publisher: Seoul, pp. 102-103.

³⁴ The vote rigging by Lee's government led to the 4.19 Student Revolution in 1960. As Korean society fell into political unrest, General Park Chunghee came to power by a military coup in May 1961. Thereafter, he held political power for eighteen years. Choi, Keung-ryul (1989), A Study of Higher Education Control by the 5.16 Military Government in Education Planning, (ed), *분단시대의 학교교육*, [School Education in the Partitioned Period (1)], Green Tree Publisher: Seoul, p. 283. See also KEDI, (1996), op. cit., p. 143.

³⁵ KEDI., (1998), p. 27.

³⁶ The government decided the general principles for university education (The First Proposal, 22nd July) and imposed regulations for state and public universities (The Second Proposal, 16th August), and private universities (The Third Proposal, 18th November). KEDI, (1998), *ibid.*, pp. 34-35.

³⁷ The uncontrolled expansion of higher education during the 1950s lowered the quality of higher education. *Ibid.*

³⁸ KEDI, (1996), op. cit., p. 151.

³⁹ KEDI, (1998). p. 36.

⁴⁰ The government intervention in the scale of higher education was mainly to increase the quality and efficiency of the higher education system and to support the national industries by supplying educated manpower. However, the military regime was also cautious about students' participation in politics. KEDI, (1998), p. 37.

⁴¹ KEDI, (1998), p. 36.

⁴² KEDI, (1996), op. cit., p. 144.

⁴³ Choi Keungryul, (1989), op. cit., pp. 295-260.

⁴⁴ The 4.19 Student Revolution in 1960 prompted the government to focus on political control of higher education (students and academics). Choi Keungryul (1989), op. cit., p. 284.

⁴⁵ KEDI, (1996), op. cit., p. 154.

⁴⁶ Adams and Gottlieb, (1993), op. cit., p. 28.

⁴⁷ Ibid.

⁴⁸ The liberal-democratic legal system could be ignored. It was an initiation of, so called, Korean Democracy with the stress of anti-communism and national security-centred policy in partitioned Korean peninsula. Yoon Chul-kyung, (1989), The Curriculum Control of the State Textbooks under the Yushin System, in Education Publishing Plans, (ed), *분단시대의 학교교육*, [School Education in the Partitioned Period (1)], Green Tree Publisher: Seoul, p. 363.

⁴⁹ Adams and Gottlieb, (1993), op. cit., p. 28.

⁵⁰ Therefore in Korea anti-communism and education reform had been utilized as an important methodology in political power strengthening. Choi., Keung-ryul, (1989), op. cit., p. 328, and also see Choi., Chong-chul, (1989), Reform of Education System and Social Control of the State in School Education – 7.30 Education Reform, in Education Publishing Plan, (ed), *분단시대의 학교교육*, [School Education in the Partitioned Period], Green Tree Press: Seoul, p. 387.

KEDI, (1996), *An Analytical Study of the Role of Development*, KEDI Press: Seoul, p. 161.

⁵² Adams and Gottlieb, (1993), op. cit., p. 30.

⁵³ Community activities of schools were encouraged. The government implemented new knowledge and skills in the school curriculum. The civic education in particular was strengthened to educate students to be aware of their community, therefore, could contribute to the regional and national economic development. With the acceleration of the national economic development, Korean education system had produced literate citizens and skilled labours. This, in return, encouraged more Koreans to turn to learning new technologies and scientific knowledge.

⁵⁴ KEDI, (1996), op. cit., p. 176.

⁵⁵ Ibid.

⁵⁶ Adams and Gottlieb, (1993), op. cit., p. 29.

⁵⁷ KEDI, (1996), *ibid.*, p. 174

⁵⁸ Park Chunghee was assassinated in 1979, and a serious power struggle followed. When the politicians failed to cope with the political crisis after the sudden absence of the leader, a new military group led by Chun Dowhan and Roe Taewoo came to political power after the 5.17 State Emergency National Law in 1980. Choi, Chongchul, (1989), *op. cit.*, p. 392.

Park's government was successful in leading national economic development during the 1960s and 1970s. However, the neo-military government in the 1980s needed to deal with increasing public demands for the ways of equal distribution of economic prosperity and the improved quality of social systems. The government used education reform again for its political campaign. Choi., Chongchul, (1989), *ibid.*, p. 405.

⁶⁰ Adams and Gottlieb, (1993), *op. cit.*, p. 30.

⁶¹ Around 30 per cent of students were expected to drop out before the end of the degree course. Choi, Chongchul, (1989), *op. cit.*, pp. 392-395.

⁶² Kim, Inhoe, (1997), Is it a Reform of Democratic Government or Military government? *대학 교육*, [University Education], No.4, p. 96.

⁶³ Green, A. (1999), Comparative Perspectives on Skills Formation in Japan, South Korea, Singapore and Germany, Institute of Education Publication, p. 39.

⁶⁴ Lee, Jeongseon, (1995), The Process of Industrialization and education in Korea, *Korean Journal of Higher Education*, Vol. 7, No.2, p. 275.

⁶⁵ KEDI, (1996), *국가 발전에서의 교육의 역할분석 연구 (1): 연구 모형의 설정과 해방 이후 한국교육의 전개과정분석(1945-1995)*, [An Analytical Study of the Role of Education in National Development(1): the formation of a study model and the analysis of the development process of Korean education after liberation (1945-1995)], KEDI Press: Seoul, pp. 189 and 191.

⁶⁶ Lee, Jeongseon, (1995), *ibid.* p. 276.

⁶⁷ KEDI, (1996), *op. cit.*, p. 244.

⁶⁸ McGinn, N. *et al.*, (1980), Education and Development in Korea, Havard University Press: Cambridge, Mass, p. 105.

⁶⁹ OECD, (1998), *Korea: Reviews of National Policies for Education*, OECD: Paris, p. 94.

⁷⁰ McGinn, N. *et al.*, (1980), *op. cit.*, p. 106.

⁷¹ KEDI, (1996), *op. cit.*, p. 155.

⁷² Kim, T. (1986), *한국 경제론*, [A Korean Economic Theory], Ilchokak: Seoul, pp.

66-67.

⁷³ The electronic industry expanded, as parts manufacturing for exports increased. The exports grew rapidly, consisting of 80 per cent of all national exports. K. Kim, *et al.*, (1993), p. 145.

⁷⁴ K. Kim *et al.*, (1993), *The Structure of the Korean Economy*, Hanul Academy Publisher: Seoul, p. 145.

⁷⁵ This law was one of the examples of the government's support for national economic growth. K. Kim, *et al.*, (1993), *The Structure of Korean Economy*, Hanul Academy Publisher: Seoul, p. 146.

⁷⁶ The number of vocational secondary schools (at upper secondary level) was increased. Specially designed five-year vocational schools (instead of the usual three year upper secondary education) were established to intensify training in the field. KEDI, (1996), *An analytical study of the role of education in National Development*, KEDI Press: Seoul, p. 155.

⁷⁷ Ibid.

⁷⁸ Kim, T. (1986), *op. cit.*, p. 67.

⁷⁹ Korea also benefited from the international transmission of new technology from the United States and Japan. KEDI, (1996), *op. cit.*, p. 158. see also McGinn, N. *et al.*, (1980), *op. cit.*, p. 107.

⁸⁰ McGinn, N. *et al.*, (1980), *op. cit.*, p. 116.

⁸¹ Kim, T. (1986), *op. cit.*, p. 73.

⁸² Ibid.

⁸³ K. Kim *et al.*, (1993), *op. cit.*, p. 145.

⁸⁴ Ibid.

⁸⁵ K. Kim *et al.*, (1993), *op. cit.*, pp. 146-147.

⁸⁶ Kim, T. (1986), *op. cit.*, p. 77.

⁸⁷ The fall in the economic growth of the industrialised countries brought the immediate drop of national output by five per cent in 1980. However, Korean economy was able to grow, depending on rising exports to the US market caused by the over-valuation of the US dollar. Hewitt, T. *et al.*, (eds), (1992), *Industrialisation and Development*, Oxford University Press: Oxford and the Open University: Milton Keynes, p. 121.

⁸⁸ The workforce in manufacturing industries grew to 4.7 million in 1988, while the workforce in agriculture fell from 35 per cent in 1978 to 19 per cent in 1988. Hewitt, T.

et al., (eds), (1992), op. cit., p. 123.

⁸⁹ It was also pointed out that the oversupplying of university graduates in the fields of the arts affected graduate unemployment. Choi., Chongchul, (1989), op. cit., p. 410.

⁹⁰ KEDI, (1996), op. cit., p. 239.

⁹¹ KEDI, (1996), op. cit., p. 240.

⁹² Huang, Xiaoming, (2005), *The Rise and Fall of the East Asian Growth System, 1951-2000: institutional competitiveness and rapid economic growth*, RoutledgeCurzon: London and New York, p. 208.

CHAPTER SEVEN

ENGLISH HIGHER EDUCATION IN THE RISE OF A KNOWLEDGE-BASED ECONOMY

The purpose of this chapter is to describe the development of new shapes of the English higher education system in the 1990s and higher education's new relationships with the state and the economy.

The chapter will firstly look at the structural changes in the English higher education system. The growing political attention to the economic responsibility of English higher education introduced new values like accountability, efficiency and effectiveness into the governance of the system. Secondly, it will also investigate how these new values affected the key business of higher education, research activities in particular. The political stress on research activities in universities for the support of knowledge industry and hence the development of diverse and cooperative networking between institutions and industry were reshaping the relationships between higher education, the state and the economy.

This chapter argues that political discussion about utilising higher education as a major tool for national advancement increased in the 1990s, stressing the economic contribution of English higher education. The development of market-oriented policies reshaped the forms of English higher education system substantially at this time; the government began to play a key role in the governance of higher education institutions in order to enhance the production of new knowledge and skills. These changes altered the relationships between higher education, the state and the economy.

THE CHOICE OF KNOWLEDGE

This section investigates the changes in the structure of English higher education system in the 1990s and their influence on the choice of knowledge in higher education.

The most visible changes made in the system in these years were the abolition of the binary higher education system and the creation of new funding systems.¹ The 1991 White Paper, *Higher Education: A New Framework* introduced the abolition of the binary system in higher education, a quality monitoring system, a new funding system (through Further and Higher Education Funding Councils), and a strong mechanism for monitoring higher education.² The government also brought in a single admission system, the Universities and Colleges Admission Service.³

The development of polytechnics from 1965 to 1991 had already begun to alter traditional ideas about higher education in many ways.⁴ Firstly, the rapidly growing number of students in polytechnics from the 1960s contributed to the widening access to higher education – for women, ethnic minorities and mature students in particular. Secondly, the practical approach to education programmes – as polytechnics developing new subjects and different forms of courses like modular courses - improved students' choices of ways of learning in higher education.⁵ Political support for polytechnics as vocationally-oriented higher education and for the promotion of equal access to higher learning encouraged academic universities to consider introducing new methods of teaching like modular courses and accept non-traditional students.⁶ As a result, the differences between universities and polytechnics had been narrowed. In the process of unification, therefore, the philosophy of polytechnics and the traditional values of universities were coincided in one mass system.⁷ In addition, the legal binding of the two sectors formed a firm foundation for

more government control of public funding and the accountability of all higher education institutions.⁸

After the introduction of the 1992 Higher Education Act, the growth of higher education was significant. For example, in 1963, when the Robbins Report was presented, there were only 24 universities in Britain, including six new universities, the number of universities increased to 93, including 31 former polytechnics, after the abolition of the binary higher education system in 1992.⁹ The initial target of the government was one person in three in higher education by 2000; in fact, this goal was achieved much earlier, in 1993.¹⁰ The participation rate of women became equal to that of men in the middle of the 1990s, and the participation rate of mature students grew to 65 per cent in post-1992 universities.¹¹ Indeed, the expansion of the higher education system after 1992 was surprising and attracted political attention.¹²

The growing size of higher education brought structural changes in the course arrangements, administration and evaluation systems of institutions. Firstly, they needed to develop new courses and programmes to accommodate the increasingly diversified students.¹³ The curriculum in many institutions was oriented to meet vocational and market needs.¹⁴ Universities developed 'transferable' practical courses at graduate and post-graduate levels, a modular course structure and a research assessment system.¹⁵ More student support systems were introduced to the administration, in order to care more for part-time learners and diversifying needs for education.¹⁶ Secondly, higher education institutions increased their links with industry and commerce.¹⁷ The development of links between university and industry affected both R&D and the management of the institutions. Thirdly, the development of IT

technology and communication removed the time limit and space barriers of higher education, and altered the traditional forms of teaching and learning practices and of communication between teachers and students.¹⁸

Overall, the expansion of higher education led to the development of new market-oriented courses and new management skills. Especially it altered the traditional choice of knowledge in teaching and research activities through the emphasis on the commercial value of knowledge. The shift of focus towards commercial value also affected the primary roles of higher education. It will be examined in the next section.

THE ROLE OF HIGHER EDUCATION

This section will examine the growing economic role of English higher education in the 1990s. The growth of higher education and the rise of a knowledge-based economy affected the key roles of higher education.

During the 1990s, the government's policies on higher education were influenced increasingly by the changing world economy.¹⁹ The governments sought ways of utilising higher education as economic competition in international markets intensified. In particular, the growing expectation that higher education could bring economic benefits to industry encouraged governments in many industrialised countries to support research in applied science.²⁰

In England, the government has been concerned about the poor economic contribution of higher education since the 1980s.²¹ For example, the 1985 Green Paper,

The Development of Higher Education into the 1990s stated that:²²

The economic performance of the United Kingdom since 1945 has been disappointing compared to the achievement of others. The government believes that it is vital for our higher education to contribute more effectively to the improvement of the performance of the economy.

In this Paper, the government recognised the shortage of appropriately qualified manpower, recommended that higher education should respond to future economic changes, and encouraged higher education institutions to create links with industry and commerce such as industrial contracts, consultancies, the appointment of businessmen to the governing bodies of academic institutions, joint academic appointments with business and other employers, updating and sandwich courses, the sponsorship of individual students by employers and the appointment of industrial liaison officers.²³

Table 7.1 Jarratt Proposal for Performance Indicators

Internal performance indicators
Market share of undergraduate applications by subject
Graduation rates and classes of degrees
Attraction of masters and doctoral students
Success rate of higher education degrees and time taken
Attraction of research funds
Teaching quality
External performance indicators
Acceptability of graduates (postgraduates) in employment
First destination of graduates (postgraduates)
Reputation judged by external reviews
Operational performance indicators
Unit costs
Staff/student ratio
Class sizes
Course options availability
Staff workloads
Library stock availability
Computing availability

Source: Jones, J. and Taylor, J. (1990), *Performance Indicators in Higher Education*, SRHE & Open University Press: Buckingham, p. 5.

The Committee of Vice-Chancellors and Principles (CVCP) chaired by Sir Alex Jarratt produced a report which suggested the introduction of a consistent and effective monitoring system, applying performance indicators in higher education.²⁴ Jones and

Taylor summarised the indicators under three categories, as shown in Table 7.1.²⁵ The Report suggested an establishment of a national database, as recommended by several universities, for the production and analysis of internal and external comparisons.²⁶ Despite the cautious voices about “reducing universities’ flexibilities to manage their own affairs in the way they consider most appropriate”²⁷ and “opportunities for misinterpretation, particularly by the press”,²⁸ the first 39 indicators were presented in 1987. Among the performance indicators in Table 7.1, external performance indicators were clear measures of the economic contribution of higher education, which had been low in English universities.

The proposal was further developed into the 1987 White Paper, *Higher Education: Meeting the Challenge*.²⁹ Although the paper said that it respected the Robbins Committee’s definition of higher education³⁰, it urged the need to improve its management, funding and quality. The Paper emphasised the value of research and its links to industry, and pointed out the economic requirements of the country:³¹

Meeting the needs of the economy is not the sole purpose of higher education; nor can higher education alone achieve what is needed. But this aim, with its implications for the scale of and quality of higher education, must be vigorously pursued. The achievement of greater commercial and industrial relevance in higher education activity depends much on close communication between academic staff and people in business at all levels, often but not exclusively on a local basis. These connections can lead to more suitable teaching, to research and technology transfer, and on occasions to help with equipment or finance. They also help foster the positive attitudes to enterprise which are crucial for both institutions and their students.

Discussion in Parliament about the economic role of higher education encouraged the government to consider the future requirement for highly qualified manpower in the development of higher education policies, as the government recognised the shortage of graduates in science, engineering, IT and business-related social sciences.³² The government therefore began to monitor the output of graduates in line with national

economic needs, paying special attention to science, engineering and vocational courses.³³

The high costs of higher education were another concern of the government in the 1980s.³⁴ In terms of ‘value for money’, the unit cost of higher education was lowered, but public spending on higher education increased as the total number of UK students grew from 778,000 in 1979 to 934,000 in 1986.³⁵ Therefore, the increased political interest in accountability to economic needs and the efficiency of higher education affected the development of higher education policies in the 1990s.

After the 1992 General Election, the government established the Office of Science and Technology in 1993, and presented a report, *Realising Our Potential: A Strategy for Science and Engineering*, concerning funding for scientific researches.³⁶ The Report recognised a huge improvement in the funding for university research. For example, funds from industry increased from £27 million in 1982-1983 to £114 million in 1990-1991, and the number of university-based science parks grew from only two in 1980 to over forty in 1992.³⁷ However, the Paper recommended the government to improve the following areas:³⁸

- the gap between excellence in science and technology and its usage for economic advantage,
- the absence of clear government’s objectives for the scientific and engineering communities,
- the limited investments of the government in science and technology,
- the need for a more effective mechanism for policy implementation, and
- the problems in relation to the management of careers in science and engineering.

The government was confident about solving these problems, and hence increased its support for basic research through the Higher Education Funding Council.³⁹

The Report also gave a special emphasis to the exploitation of new ideas and innovative management to secure economic benefits from science and technology, and suggested a long-term engagement in order to:⁴⁰

- promote a greater awareness of the importance of innovation throughout all sectors of the economy;
- improve the effectiveness and efficiency with which firms innovated;
- facilitate access to science and technology relevant to business, whatever its source; and
- ensure that the needs of firms were fully taken into account in decisions on the direction, nature and content of publicly funded science and technology.

Evidently, the initial intention of the English government to improve the accountability and efficiency of the expanding higher education system developed into a more economic-oriented higher education policy, with emphasis on science and technology. This policy was re-assured by the new Labour government.

The new government understood the need for further reforms to improve the quality of higher education, which had been damaged by unmanaged expansion.⁴¹ The 1997 Dearing Report, *Higher Education in the Learning Society* promoted a new approach to higher education which highlighted its contribution to the rise of life-long learning.⁴² The Dearing Report recommended that higher education should collaborate with different sectors of education to improve all types of learning and defined the role of higher education in society:⁴³

Higher education is fundamental to the social, economic and cultural health of the nation. It will contribute not only through the intellectual development of students and by equipping them for work, but also by adding to the world's store of knowledge and understanding, fostering culture for its own sake, and promoting the values that characterise higher education: respect for evidence; respect for individuals and their views; and the search for truth. Equally, part of its tasks will be to accept a duty of care for the wellbeing of our democratic civilisation, based on respect for the individual and respect by the individual for the conventions and laws which provide the basis of a civilised society.

In 2003, the White Paper: *the Future of Higher Education* recognised clearly that “higher education is a great national asset. Its contribution to economic and social well-being of the nation is of vital importance.”⁴⁴

Overall, the development of market-oriented ideas during these years emphasised new criteria such as national economic requirements, graduates’ employment, and working relations with industries, commerce and business in the development of new policies. In the formation of new purposes for higher education, the government played a critical role. In the next section, the changes in the relation between the government and universities in the shaping of higher education will be discussed.

HIGHER EDUCATION AND THE STATE

This section will examine how the state’s increased intervention in the development of higher education policies affected the relationship between higher education and the state in the 1990s.

The political interest in the efficient management of higher education in the 1980s was developed into more concrete policies in the 1990s. The 1992 Higher and Further Education Act introduced a unitary higher education system and a new funding system. The government also produced new policies to improve the quality of higher education, the quality of science and technology in particular. For example, the 1993 White Paper: *Realising Our Potential* called for an improvement of education in science and technology. The Paper stressed that “the understanding and application of science are fundamental to the fortunes of modern nations. Science, technology and engineering are intimately linked with progress across the whole range of human

endeavour: educational, intellectual, medical, environmental, social, economic and cultural.”⁴⁵

The new Labour government of 1997 continued to bring changes to the higher education system. The National Committee of Inquiry into Higher Education (NCIHE) considered four key issues relevant to roles and purposes of higher education in the twenty-first century. They were 1) the balance between research and teaching in the management of higher education, 2) the funding of higher education, 3) the curriculum in higher education institutions and 4) the quality of teaching, learning and research.⁴⁶ In the 1997 Report, the committee recommended strongly that “the government must create a society committed to learning throughout life” as education and training are vital to improve the quality of life; it stressed “higher education will make a contribution to the development of a learning society through teaching, scholarship and research”.⁴⁷ The key vision of higher education is presented in Table 7.2 (on the following page). The Report highlighted the wide and varies benefits from higher education, although it stated that, “the long term development of higher education should not be damaged by the needs of the short term”.⁴⁸ The Report presented a clear vision for the future of higher education and long-term policies for the enhancement of individual social opportunity and the strengthening of national economic power, and encouraged fair contributions to the cost of higher education, highlighting the improved opportunities for society, students, institutions, employers and the families of students when higher education can offer, as shown in the Table.

Table 7.2 Higher Education: A New Compact

	Contribution	Benefits
Society and taxpayers, as represented by the government	<ul style="list-style-type: none"> •A fair proportion of public spending and national income devoted to higher education. •Greater stability in the public funding and framework for higher education. 	<ul style="list-style-type: none"> •A highly skilled, adaptable workforce. •Research findings to underpin a knowledge-based economy. •Informed, flexible, effective citizens. •A greater share of higher education costs met by individual beneficiaries.
Students and Graduates	<ul style="list-style-type: none"> •A greater financial contribution than now to the costs of tuition and living costs (especially for those from richer backgrounds). •Time and efforts applied to learning. 	<ul style="list-style-type: none"> •More chances to participate in a larger system. •Better information and guidance to inform choices. •A high quality learning experience. •A clear statement of learning outcomes. •Rigorously assured awards which have standing across the UK and overseas. •Fairer income contingent arrangements for making a financial contribution when in work. •Better support for part-time study. •Larger Access Funds.
Institutions	<ul style="list-style-type: none"> •Collective commitment to rigorous assurance of quality and standards. •New approaches to learning and teaching. •Continual search for more cost-effective approaches to the delivery of higher education. •Commitment to developing and supporting staff. 	<ul style="list-style-type: none"> •A new source of funding for teaching and the possibility of resumed expansion. •New funding streams for research which recognise different purposes. •Greater recognition from society of the value of higher education •Greater stability in funding.
Higher education staff	<ul style="list-style-type: none"> •Commitment to excellence. •Willingness to seek and adopt new ways of doing things. 	<ul style="list-style-type: none"> •Greater recognition (financial and non-financial) of the value of all their work, not just research. •Proper recognition of their profession. •Access to training and development opportunity. •Fair pay.
Employers	<ul style="list-style-type: none"> •More investment in training of employees. •Increased contribution to infrastructure of research. •More work experience opportunities for students. •Greater support for employees serving on institutions' governing bodies. 	<ul style="list-style-type: none"> •More highly educated people in the workforce. •Clearer understanding of what higher education is offering. •More opportunities for collaborative working with higher education. •Better accessibility to higher education resources for small and medium size enterprises. •Outcomes of research.
The families of student	<ul style="list-style-type: none"> •Possible contribution to costs. 	<ul style="list-style-type: none"> •Better higher education opportunities for their children. •Better, more flexible, higher education opportunities for mature students.

Source: The National Committee of Inquiry into Higher Education, (1997), *Higher Education in the Learning Society- Summary Report*, p. 10.

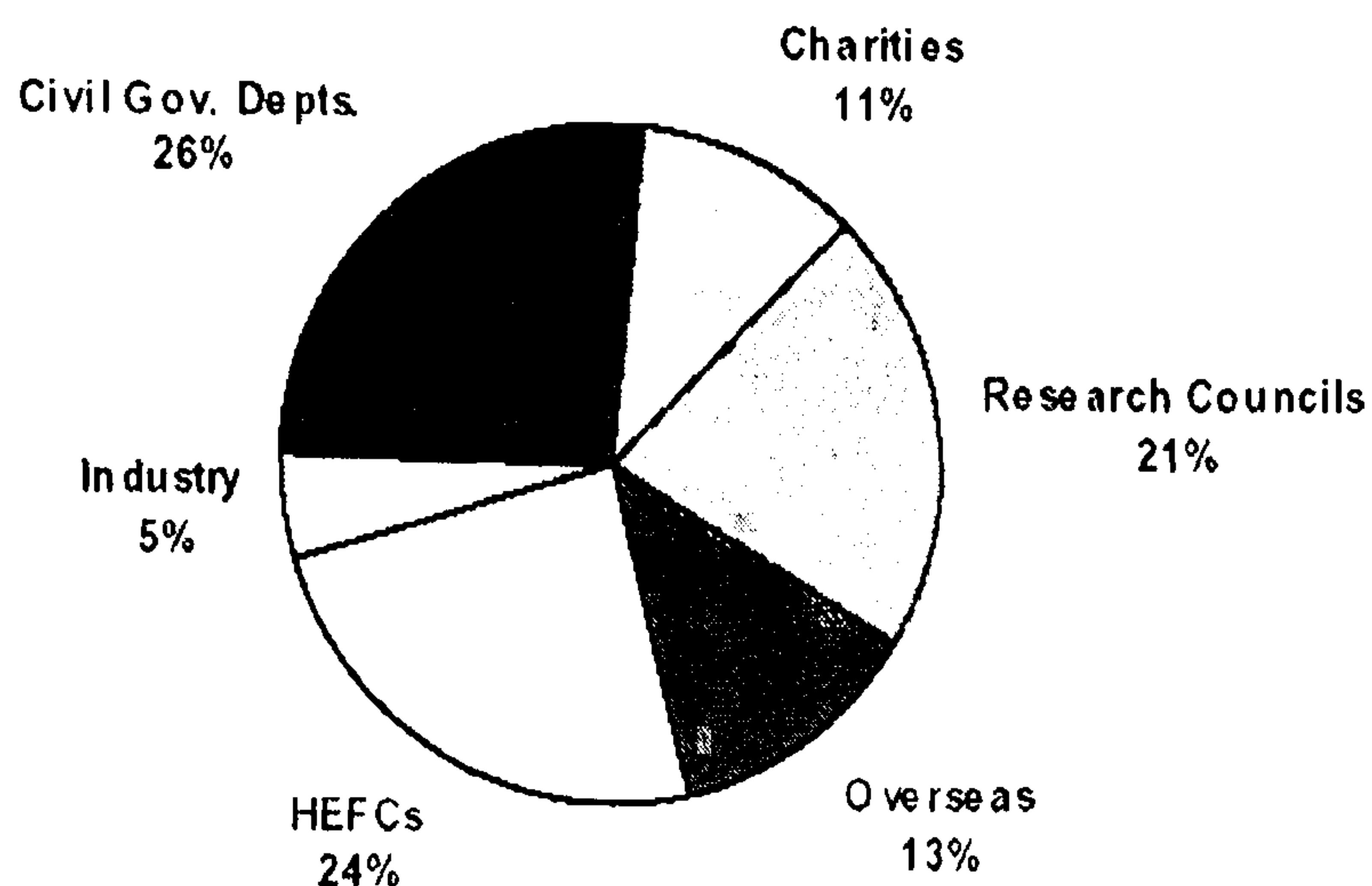
The Report also stressed external factors, such as technological change and the changing economic order, which have influenced the new shape of higher education; it defined the aims and purposes of higher education in order to serve a learning society.

Such education should: ⁴⁹

- inspire and enable individuals to develop their capabilities to the highest potential level throughout life so that they grow intellectually, are well equipped for work, can contribute effectively to society and achieve personal fulfilment;
- increase knowledge and understanding for their own sake and foster their application to the benefit of the economy and society;
- serve the needs of an adaptable, sustainable, knowledge-based economy at local, regional and national levels; and
- play a major role in shaping a democratic, civilised inclusive society.

The Report pointed out that despite the outstanding output of research in the UK government funding for research had not increased in real terms compared with other leading countries. ⁵⁰ For example, the research funds allocated through the Higher Education Funding Council were only slightly larger than those from the Research Councils in the late 1980s. ⁵¹ However, during the years between 1992 and 1995, RC funds had increased, while HEFCE funds had fallen in real terms. ⁵² Fortunately, however, higher education institutions were developing new sources for research funding to compensate the loss.

Figure 7.3 Sources of Civil Research Funds in HEIs (1994/1995)



Source: Parliamentary Office of Science and Technology, (1997), *The Future of Dual Support – Report Summary*, p.2.

For example, as Figure 7.3 shows, research funds from other sources such as EU governments and new government programmes (e.g. LINK and Technology Foresight) for higher education had improved.⁵³

The 1997 Report also advised the government to develop funding policies in order to support the UK's world's leading research centres, encouraged partnerships between higher education institutions and industries and outlined four distinctive purposes of research and scholarship:⁵⁴

- to add to the sum of human knowledge and understanding;
- to inform and enhance teaching;
- to generate useful knowledge and inventions in support for wealth creation and an improved quality of life; and
- to create an environment in which researchers can be encouraged and given a high level of training.

The government and the HEFCE stressed that all students who received benefits from higher education should contribute to order to meet the growing requirements of mass higher education.⁵⁵ The 1998 Higher Education Act introduced tuition fees, despite worries over the discouragement of the access to higher education of students from poorer backgrounds.⁵⁶ The government introduced flat fees of £1,000 with the

maintenance grant for students from poorer background.⁵⁷ The higher Education Bill in 2004 brought in variable fees up to £3,000 from 2006.

Thus the development of policies for higher education during the 1990s was different in many ways from that of the previous decades. Higher education became one of the key social and political issues. Since the Labour government came to power in 1997, it has been openly asserted that, “education is the best economic policy”. Now higher education can no longer be discussed without its relation to social and economic benefits.

Compared to the Robbins principle for higher education, new policies from the late 1980s were substantial changes in the political approach to higher education. The two main issues for higher education policies in the 1980s were the efficient management of higher education and the maintenance of high quality in research and teaching activities, serving national needs. For example, the Thatcher government stated that “the pursuit of efficiency is not just about saving money. It is about helping institutions and individuals to achieve more of what they should achieve with the money that is available”.⁵⁸ Therefore, the government set efficiency as the political priority and implemented new value of ‘market competition’ in higher education.

Interestingly, however, the government still tried to lead higher education from a distance, trying to avoid having the label of ‘traditional form of state control’.⁵⁹ This was still believed that “the state control was understood as insensitive, inquisitorial and inefficient, associated with heavy bureaucratic and hindering institutional abilities”.⁶⁰ This attitude led to a development of a surveillance system for monitoring the quality and efficiency of higher education, described as the rise of ‘evaluative state’.⁶¹ Neave says that the evaluative state was a transitional form, which could respect self-regulation of institution and public accountability at the same time, for a growing

system.⁶² The government was able to reduce central power by establishing new public bodies to evaluate universities.⁶³

In an evaluative state, the focus of the government lies on the performance, which was set to achieve by policy goals. State agencies form goals and set out incentives to increase efficiency, and evaluation becomes the core activity of the government.⁶⁴ For example, the 1987 White Paper suggested a consistent evaluation system, applying performance indicators, in order to raise the accountability, efficiency and effectiveness of higher education. These changes led to the development of new management skills in higher education.

Before, the key decisions in running universities had been in the hands of senior academics and a small group of people in their administration.⁶⁵ When the Conservative Government applied market values to public services for health, the environment and education, new terminologies like “managerialism” were introduced in university administration.⁶⁶ Managerialism is closely related to the ideas of accountability and efficiency in the use of public resources, and to effectiveness and the performance of public services.⁶⁷ As Deem puts it:⁶⁸

“The ideas of new managerialism are based purely on an objective search for efficiency, effectiveness and excellence with assumptions about the continuous improvement of organisations, ... New managerialism is used to refer to the desirability of variety of organisational changes.”

The introduction of ‘managerialism’ has been beneficial for English universities helping them to run growing organisations effectively under financial pressure from the government.⁶⁹ As the system expanded without a parallel increase in its funding from the government during the 1980s, higher education institutions were asked to behave like ‘commercial enterprises’ in search for ‘value for money, quality and price’.⁷⁰ It was critical for institutions to secure their financial stability.

These changes in the management affected values and priorities of academic work, and the relationships of academic members within each institution. The new management system reduced power of the senates and increased that of the faculties (or departments).⁷¹ As Henkel examined, the senates still had a strong central control on aims and strategies of the institution; however, deans and heads of departments took over the role of middle manager among academics, and enjoyed a certain degree of freedom in using their budget.⁷²

Overall, the relation between higher education and the state developed closer. The government led the initiation, implementing new values like effectiveness and accountability in order to monitor the efficiency of funding and to assess the outcomes of higher education. The growing economic pressure on both the government and higher education encouraged them to work for each other, creating new academic culture in England.

In the next section, this chapter will investigate the development of higher education's relation with the economy.

HIGHER EDUCATION AND THE ECONOMY

This chapter will examine the formation of a particular relationship between English higher education and the economy in the last twenty years.

Despite Britain's pioneering roles in the rise of industrialisation in the eighteenth and nineteenth centuries, British industry had been relatively slow-moving compared to other European countries from the end of the nineteenth century onwards. The thesis has examined the poor economic performance of British industry, which raised political concerns from the end of the nineteenth century, in Chapters Three and Five.

Nonetheless, during the years between 1951 and 1973, British industry achieved a relatively high rate of productive growth.⁷³ In the 1970s, however, the performance of British industry such as export share showed serious trouble once again.

For example as shown in Table 7.4 the GDP growth rates between 1973 and 1979, when the economic recession came in major industrial countries, were only half what they had been in 1951-1973.⁷⁴ The rising inflation and the sharp increase in unemployment and energy price caused by a fourfold increase in the oil price slowed down the growth of British economy.⁷⁵

Table 7.4 Growth of Key Variables in Various Phases

	Phase 1:1949-1973		Phase 2: 1973-2000		
	1949-64	1964-73	1973-9	1979-90	1990-2000
Average annual growth in read GDP (%)	3.0	3.1	2.3	2.3	2.2
Average annual growth in consumption (%)	2.5	3.0	1.9	3.2	2.5
Average annual growth in output per worker (%)	Na	3.1	1.5	1.6	2.1
Average annual growth in total factor productivity (%)	Na	1.8	1.2	1.3	1.3
Average annual ratio of current account surplus to GCP (& of GDP, current prices)	0.5	0.2	-1.2	-1.1	-1.7
Average annual ratio of balance of trade in goods and services to GDP (% of GDP, constant (1995 prices)	-0.1	-0.8	1.0	-0.3	-2.5

Source: Kitson, M. (2004), Failure Followed by Success or Success Followed by Failure? A Re-examination of British Economic Growth since 1949 in Floud, R. and Johnson, P. (eds.) *The Cambridge Economic History of Modern Britain Vol.3: Structural Change and Growth, 1939-2000*, Cambridge University Press: Cambridge, p 32.

The Thatcher government launched radical policies to turn around the national economy. The key element of Thatcher’s economic policy in the 1980s was “the improvement of the supply-side of the economy by decreasing the role of the state and promoting the operation of the free market”.⁷⁶ Thus the government introduced privatisation and deregulation, the reform of industrial relations and the weakening of trade union power, and restraint on public expenditure.⁷⁷ It is argued, although is still

controversial, that the changes in industrial relations improved the competitiveness of the labour market, and that the new policies encouraged an entrepreneurial culture.⁷⁸ However, the reduction in public funding and borrowing reduced investment in infrastructure and education.⁷⁹ For that reason, political concerns were raised about the falling quality of the status of the national workforce.

Traditionally, the major professional bodies have played an important part in supplying employees with higher-level qualifications in Britain: this was an advantage over both Germany and the United States.⁸⁰ However, the advantage was removed by the expansion of higher education in the United States, which occurred a generation earlier than in Britain and Germany. Table 7.5 shows the different degrees of skill levels in each sector in the UK, USA and Germany.

Table 7.5 Stocks of Qualified Persons as % of Employees, by Sector and Skill Level in the UK, USA and Germany

1998	Higher level			Intermediate level		
	UK	USA	Germany	UK	USA	Germany
Agriculture	6.1	14.6	4.8	29.1	13.3	67.5
Mining & oil refining	14.7	19.2	2.9	46.1	16.8	69.8
Manufacturing	10.9	20.7	9.9	39.5	16.7	68.4
Construction	6.0	10.6	7.0	55.8	15.7	73.6
Utilities	19.1	23.2	14.8	47.8	22.0	70.3
Transport & communication	7.9	19.8	8.6	33.8	20.6	71.8
Distribution	6.2	15.6	5.8	28.8	19.1	70.7
Finance & business service	27.5	33.0	24.1	23.1	20.2	58.4
Miscellaneous personal services	15.6	19.3	17.6	31.4	19.4	59.7
Non-market services	25.9	46.0	27.5	34.4	19.1	56.5
Whole economy	15.8	27.7	15.0	33.9	18.6	65.0

Source: O'Mahony, M. (2004), Employment, Education and Human Capital, in Floud, R. and Johnson, P. (eds.) *The Cambridge Economic History of Modern Britain Vol.3: Structural Change and Growth, 1939-2000*, Cambridge University Press: Cambridge, p. 125.

For example, as the data for 1998 in Table 7.5 show, the USA was dominant in the advanced higher-level skills. O'Mahony states that for the total economy, the proportion of the workforce with higher-level skills in 1998/9 was around 70 per cent

higher in the USA (15.8%) than in the UK (6.8%) and Germany (7.0% in former West Germany only).⁸¹ Although the 1998 figures in Table 7.5 show a slight improvement, the UK and Germany were still behind than the USA. Table 7.5 also shows that there were not many differences between the UK and Germany in higher-level skills. However, Germany was superior in intermediate skills. This is partly because of the emphasis on workers obtaining craft-level qualifications in Germany.⁸² Thus the skills of the British workforce lagged behind those in the USA and Germany at both higher and intermediate levels. The poor provision of British education and training was blamed partly for weak economy, and this emphasis led to substantial reforms in the 1980s and the 1990s.

The government introduced the Research Assessment Exercise (RAE) to review government-funded research and examine the quality of research.⁸³ The government also developed special funding programmes for research to encourage universities to serve economic needs.⁸⁴ Table 7.6 on the following page summarises policies that supported programmes for research in universities.

The government was confident about the outstanding quality of science research and scientists in English universities, but recognised that there was still room for improvement in the cooperation between academics and industry.⁸⁵ The government encouraged collaborative activities between higher education and industry.⁸⁶ For example, the LINK programme (shown in Table 7.6) in 1988 promoted the exchange of research results and the transformation of 'basic research data into commercially exploitable ideas'. Over £ 500 million were invested in about 1,300 LINK projects in 12 years.⁸⁷ The Cooperative Awards in Science and Engineering (CASE) 1988 also supported graduate students undertaking projects in industry; new schemes, such as students' work experience in companies during vacations and support for the development of new enterprises were examples of cooperative links between higher education and industry.⁸⁸

Table 7.6 Policy Chronology in the UK

Year	Event	Policy content
1971	Rothschild report	The customer-client principle emphasizing the role of the departments in becoming active contractors of applied research
1975	Teaching Company Scheme (TCS)	By DTI. Provides for industry-based training, supervised jointly by personnel in the universities and industry
1986	Privatisation of the British Technology Group	Ownership of patents arising from government sponsored research was to be decentralised to universities
1986	Research Assessment Exercise by UGC	The introduction of formula-based funding for research, infrastructure as distinct from funding for teaching, to be based on performance
		Government established the principle not to support near-market research with public money
1988	The LINK Programme	The programme started as the government's main mechanism for supporting collaborative research partnerships between UK industry and the research base
	Cooperative Awards in Science and Engineering (CASE)	Cooperative awards in science and engineering (CASE) started by research councils to support postgraduate students in projects of joint interest to industry and higher education
1992	Further and Higher Education Act	Polytechnics were upgraded to become universities, intensifying competition for higher education funding
1993	Realising our potential	The White Paper from the government published
1994	The ROPA scheme	Initiated by research councils to reward researchers who have received substantial financial support from the UK private sector for basic and strategic research.
	Foresight awards by Royal Academy of Engineering for R&D projects	Foresights awards by Royal Academy of Engineering for R&D projects
	Biotechnology Exploitation Platform Challenge	By DTI. Aims to encourage the syndicates of universities and intermediaries to work together to build a portfolios of intellectual property.
	Joint Research Equipment Initiative by HEFCE	By HEFCE. To support research infrastructure/equipment in HEIs while promoting partnership with external sponsors of research and industry
1997	Faraday partnerships	Faraday partnerships started
1998	Competitiveness White Paper	Competitiveness White Paper
	Science Enterprise	Science Enterprise
1999	The Higher Education Reach Out to Business and the Community (HEROBC)	By HEFCE. Competitive funding to support higher education institutions to create the conditions and support structures for more effective links with industry
1999	The University Challenge competition by DTI	By DTI. To set up seed funds to support early stage commercialization
2000	Higher Education Innovation Fund	By DTI and HEFCE jointly, incorporating Higher Education Reach Out to Business and the Community (HEROBC)

Source: Hatakenaka, S. (2004), *University-Industry Partnerships in MIT, Cambridge and Toyko: Storytelling across Boundaries*, Routledge Falmer: New York and London, p. 33.

Researchers in universities were encouraged to be aware of the benefits derived from the commercial exploitation of research results and the responsibility for its promotion. Firms and business were also advised to take advantage of the work of higher education in terms of its research activities, technology transfer and consultancy.⁸⁹ The new selective planning and allocation arrangements encouraged higher education institutions to seek additional funds from the private sector.

Overall, the governmental support for research in higher education made good progress. The share of the industry's contribution to research funds increased from 5.6 per cent in 1985 to 6 per cent in 1995 and to 7.1 per cent in 1999.⁹⁰

The nature of relationships between universities and industry was also changed. The earliest form of university-industry relation was the 'Science Park'. Herriot Watt and Cambridge Science Parks were the first two parks created in the UK, in the 1970s, modelled after the typical US parks of that time.⁹¹ In the 1980s, new science parks in the Universities of Aston, Birmingham, Manchester and Warwick led the creation of such parks in Britain.

The number of science parks grew from 2 in 1980 to about 50 in 1997.⁹² Thus these parks, which were largely unnoticed until the middle of the 1980s, became a dominant feature in university-industry relations.⁹³ However, despite the quantitative growth of science parks, many were not clear about their direction as only 30-40 per cent were active.⁹⁴ According to Rowe, creativity and innovation based on partnerships and alliances, which bring different skills together to work smoothly and creatively, are important in the success of science parks.⁹⁵ Nonetheless, the quality of parks and different forms of R&D centres around universities was improved under the continuous political and economic supports. As the market need leads the creation of research activities, new collaboration can be organised easily in and outside universities.

Under the political pressure from new funding and management systems, English higher education institutions restructured their organisations to become more adaptable and responsive to these changes.⁹⁶ Financial pressure on institutions led them to employ business minds in their management. For example, the University of Warwick's innovative changes in the 1980s were initiated by a severe funding cut. Clark describes this new trend in the culture of higher education as a move to 'entrepreneurial university'.⁹⁷ He explains that, "an Entrepreneurial University seeks to innovate how it goes about its business. It seeks to work out a substantial shift in organizational character so as to arrive at a more promising posture for the future."⁹⁸ The higher education policies in the 1990s which altered the academic culture show English universities moving close to being entrepreneurial.

In the next section, this chapter will examine how the new higher education policies influenced English universities.

CHANGES IN THE SHAPES OF UNIVERSITIES

In this section, this chapter will examine changes at three English universities: the University of Cambridge, University of Manchester and University of Warwick.

The University of Cambridge is one of the most privileged universities in England, with a long and proud history. The university has created a strong liberal tradition in academic study and has been a model of high quality teaching and research for other universities worldwide. The University of Manchester was re-created in October 2004 by joining the Victoria University of Manchester together with the University of Manchester Institute of Science and Technology. The University of Warwick is the youngest institution, but most successful in its innovative management

and its transformation as a research-oriented institution by creating entrepreneurial relationships with local industries.

These three institutions, with very different histories, aims and priorities in teaching and research activities, experienced substantial changes to serve new purposes and roles introduced by the government. The investigation of institutional changes at these universities will show the nature of changes in higher education in England in recent years.

The Purpose of the University

The definition of the appropriate role of universities has changed over time. In recent years in particular, the economic contribution of universities has been stressed, along with the growing importance of research activities. In this section, by looking at the official discourse of each university, this chapter will examine how new policies affected the primary purpose of each institution.

The University of Cambridge clearly states that its mission is to contribute to society through the pursuit of education, learning and research at the highest international levels of excellence.⁹⁹ In the official website, the university presents clearly its core values in education and the university's relationship with society:¹⁰⁰

Core values of education

- The encouragement of a questioning spirit
- An extensive range of academic subjects in all major subject groups
- Quality and depth of provision across all subjects
- The close inter-relationship between teaching, scholarship, and research
- Strong support for individual researchers as well as research groups
- Residence in Cambridge as central to most courses
- Education which enhances the ability of students to learn through life

The relationship with society

- The widest possible student access to the university
- The contribution which the university can make to society through the pursuit, dissemination and application of knowledge
- The place of the university within the broader academic and local community
- Opportunities for innovative partnerships with business, charitable foundations and health care
- Concern for sustainability and the relationship with the environment

These specified core values of the university influence its identification in the twenty-first century. The University of Cambridge still pursues the traditional model of liberal education. However, it also takes into account the new roles and the new expectations of the continuously changing society. For example, despite its high reputation for teaching and research, the university still emphasises wider students' access to the university and maintains the emphasis on the creation of business partnerships.

The University of Manchester experienced substantial structural changes, as Victoria University of Manchester and the University of Manchester Institute of Science and Technology (UMIST) were unified in 2004. The aim of the merger was “to establish the new University as a world-class institution for the 21st Century, and partnerships with, and work on behalf of, business and industry are central to our mission”. The university presented a Foundation Declaration and expressed its defining ideals and aspirations:¹⁰¹

In commemorating our founders, benefactors and distinguished predecessors, we commit ourselves to the cause they served of nurturing The University of Manchester as a scholarly community engaged in a common search for knowledge and wisdom. We affirm our resolve to make our University a place where students, whatever their backgrounds, learn to pursue truth through rational inquiry; where researchers engaged in discovery are also teachers; where research is valued both for its own sake and for the betterment of the world; where academic freedom is encouraged and protected; where the cultivation of cognitive skills, independence of mind, intellectual integrity and artistic expression

promotes understanding and appreciation of the best that is known, thought and created in the world; and where students and staff are encouraged, as responsible citizens of their own societies and of the international community, to embrace fundamental human and civil rights as the only just, sustainable basis for a humane civilization.

The University presented a new aspiration, to be one of the world's leading universities by 2015, and set out nine goals in *the 2015 Agenda*. They are: ¹⁰²

- High International Standing
- World Class Research
- Exemplary Knowledge and Technology Transfer
- Excellent Teaching and Learning
- Widening Participation
- Empowering Collegiality
- Efficient, Effective Management
- Internationally Competitive Resources
- More Effective Service to the Community

These goals show the university's commitment to the highest quality of teaching and research. The University of Manchester therefore proclaimed an ambitious vision, to reposition the university in the world. The progress towards the set targets of nine goals will be evaluated and reviewed annually.

The University of Warwick achieved a good reputation in both teaching and research, despite its short history, by promoting "good research informs and strengthens the quality of education". ¹⁰³

When the University of Warwick faced a serious budget cut in the 1980s, the university sought opportunities to create its own earned income through conference business, post-experience programmes, fundraising, increasing international student numbers and developing links with businesses and the local community. ¹⁰⁴ The success of the entrepreneurial approach to the management of the university secured its financial stability and has promoted the development of the university as a whole.

• UK industry	£20,332,000
• UK health and local authorities	£ 1,460,000
• EU government bodies	£10,903,000
• Overseas	£10,823,000
• Other sources	£ 2,095,000
Total	£188,711,000

The University aims to make a real contribution to the development of eastern England. The 'Cambridge Phenomenon' that grew out of relationships between academics and business experts continues to flourish, with the support of the East of England Development Agency. The Research Services Division plays a constructive role in developing collaborations between the university and organisations in the region, including *i10* - the government-funded body that helps companies in the east of England by connecting them with local university expertise. As a world-renowned centre of teaching and research excellence, the university is committed to collaboration with industry. The university offers:¹¹⁰

- A corporate relationship,
- Research and development,
- Commercialisation and exploitation of our research outputs,
- Consultancy and technical services,
- Staff training and professional development, and
- Student and graduate talent.

The commitment of the University of Cambridge to its quality of teaching and research and to local industries became a good model for other universities in the UK.

The plan of the University of Manchester is to be a world-renowned centre of scholarship and research by 2015. The University aims to be among the top 25 universities in the world, at the highest international level of research excellence.¹¹¹ The

university has already achieved a global reputation for being at the forefront of innovative and enterprising research. With research funding in the region of £170 million and rising every year, the university is on course to meet its target by 2015.¹¹²

The breakdown of external research funding for Manchester is:¹¹³

- Higher Education Funding Council for England (HEFCE) grants - £68.9m
- UK Research Councils - £58m
- UK charities - £31.5m
- Government departments - £33.5m
- UK industry and commerce - £8.2m
- Overseas - £12.4m
- Other sources - £3.5m

Total - £216m (Source: HESA/HEFCE 2004/2005)

In the 2001 RAE, as separate institutions the UMIST and the Victoria University Manchester together accrued a total of 46 top grades of 5* and 5 for their research activity, while Oxford accrued 42 and Cambridge 48.

Among the nine goals of the Manchester 2015 Agenda, the second goal shows its specific targets for the improvement of research.¹¹⁴

Goal Two: World Class Research

The university recognises research performance and reputation as the key drivers of reputation and standing among leading universities at the highest international level.

1) Building a world class research profile

The university wants to improve research planning at all levels through outstanding appointments, developing the potential of existing staff and increase funding available for research.

2) Encouraging and enabling current staff to reach their full potential

The university offers full support for the existing scholars and young researchers to realise their full potential.

3) Emphasising excellence in appointments

The university will only appoint people who are at or have the potential to reach the international first rank.

4) *Achieving international research leadership in selected areas*

In pursuit of its 2015 goals the university will establish and sustain genuine international research leadership in five or six fields, together the capability to contribute to cutting edge research partnerships nationally and internationally in 20-25 areas.

5) *Demonstrating “step change” research improvement in the 2008 RAE*

The university also set targets for research performance: ¹¹⁵

- By 2008, to demonstrate that at least 50% of the University's research is of international quality, and that 100% of it is of national quality.
- By 2015, to improve these figures yet further, with at least 70% of our research at international quality levels.
- By 2015, to double research grant and contract income, and substantially increase the proportion of research funding we win from industry.
- By 2015, to double the number of postgraduate research students and postdoctoral researchers.
- To increase levels of postgraduate research student satisfaction, year on year, as measured by an independent survey.

As these targets for research promotion show, the university is determined to achieve the highest international level of research activities. Based on the years of experience of collaboration with industry, the university has developed clear management structures to facilitate this work and to meet the needs facing industry today. The university offers to:¹¹⁶

- Work closely with academic staff to build a relevant and comprehensive portfolio of research activity,
- Bring together the exact mix of research expertise needed to meet company's specific development needs,

- Identify, protect and exploit intellectual property,
- Assess the commercial viability of knowledge, and
- Balance commercial needs with academic publication.

The University of Warwick also has high ambitions for its research, and continually strives for internationally recognised quality in research activities. Its strategy builds on the significant step-change in its capacity to undertake exciting, world-leading, and innovative research that has been achieved in recent years.¹¹⁷ The university made a substantial, targeted investment to develop:¹¹⁸

- multi-disciplinary research activities in strategically important and emerging areas, as centres of excellence in research, doctoral training and knowledge transfer activities;
- cutting edge, state-of-the art research facilities, infrastructure and support services;
- an exciting and stimulating environment, to attract and develop the very best researchers and students to work with communities of interest from all sectors and all corners of the globe, in a vibrant knowledge community;
- closer relationships and active engagement with key stakeholders, research funders, business and industry, policy makers, user communities and entrepreneurs, to share in and capitalise on the maximum possible impact and translation of our research;
- a raised profile for the research undertaken in Warwick and through our collaborations and partnerships across the UK, Europe and globally;
- greater awareness and debate on the key issues affecting society arising from leading-edge research and the need to address world problems of long-term strategic importance.

The university continues to innovate, exploring new models for collaboration and networking with its partner organisations, and is committed to maintaining sound financial management of its research and knowledge transfer activities to ensure their sustainability in responding to new opportunities to extend the boundaries of knowledge and understanding.¹¹⁹

The university has gained an international recognition as an innovative and entrepreneurial centre of knowledge and technology transfer to business and the public sector. The university works in partnership with a wide range of companies and organisations, from the largest multi-nationals to the smallest new businesses.¹²⁰ It offers a range of services to business, from training and professional development, to support for research and development. The university campus has a wide range of conference, hospitality and other facilities available. The university set up an Institute of Advanced Study in order to provide a site of international research interchange for the university, and set a target of having at least 45 ISI Highly Cited researchers by 2015.¹²¹

Thus the new visions, purposes and strategies for research development of all three universities show the increased market influences on their key activities. The entrepreneurial management of the university was a very new idea twenty years ago. However, now the implementation of new management skills oriented to competition, evaluation and targets has contributed to the improvement of financial security, as the case of Warwick shows. Securing public funding and developing extra sources for research funding from industry and overseas became critical for all three universities to ensure the good quality of research centres. In addition, working with and for industry are important parts of R&D in each university. The innovative and entrepreneurial attitude to reorganising institutions (course systems, faculty structures and research centres) also brought changes in the management of university.¹²²

The universities' growing dependency on funds for the transformation of institutions is described as the rise of 'academic capitalism'.¹²³ This term academic capitalism refers to "the reality of the nascent environment of public research universities, an environment full of contradictions in which faculty and professional

staff expense their human capital stocks increasingly in competitive situations.”¹²⁴ In these circumstances, universities are likely to carry out applied rather than pure research in order to attract more private funding from industry. This capitalistic attitude can be understood in relation to the shifting focus on utilitarian values in higher education rather than on cultural values.¹²⁵ In fact, regardless of the current achievement of each university, all three universities experience financial difficulties in restructuring their organisations, and hence implementing business-like management systems.

CONCLUSION

This chapter has discussed the new shapes of English higher education and of its relationships with the state and the economy from the 1990s. It stressed how the political interpretation of the changing world economy altered the governance of higher education institutions and the relationships between higher education, the state and the economy.

In Chapter Two, the thesis proposed that the application of the Net Model might be helpful in analysing the changes in higher education in England and South Korea in the 1990s. The key characteristics of the Net model are:

- i. What counts as “the most important knowledge” depends on the potential economic value that new knowledge can further generate. The choice of knowledge and new knowledge production in higher education are significantly influenced by its possible commercial value in terms of its applicability to the market.
- ii. Higher education maintains the role of elite formation. However, the old notion of the elite is no longer suitable for a highly specialised and diversified labour

market. Higher education in the Net Model is responsible for the production of wider ranges of educated professions and new knowledge.

- iii. The state considers higher education in relation with the national and international economy. The state develops controlling mechanisms for efficiency, accountability and quality of higher education and to lead higher education institutions to meet changing economic conditions.
- iv. The political analysis of national economic conditions influences the direction of higher education. Entrepreneurial principles are applied to the development of educational programmes, research activities and the management of institutions.

This model then can be used in reviewing the chapter's arguments, focusing on four themes: knowledge in higher education, roles of higher education, the state and the economy.

Knowledge in higher education

The expansion of the higher education system and the development of market-oriented higher education policies in the 1990s affected what kind of knowledge should be taught and produced in higher education. The commercial value of new knowledge in the market became important in knowledge production. English universities have been encouraged to develop customer-oriented education courses and market-driven research activities.

Roles of higher education

The growing emphasis on the economic contribution of higher education altered its purpose and role. For example, higher education institutions were asked to consider national economic requirements, graduates' employment, and changes in commerce and business as they develop their courses. New evaluation systems such as the RAE also became an important indicator of each institution's quality of research activities and its potential ability to secure public research funds. Therefore

there are continuing processes of negotiation and re-negotiation about proper roles of higher education.

The state

The government's policies on higher education stressed the accountability, efficiency and quality of higher education as appropriate for a lifelong learning society. The government-led development of new funding and evaluative systems increased the role of the government in the decisions on the direction of higher education. . The cases of the Universities of Cambridge, Manchester and Warwick show how political and economic pressures influenced their priorities in the development of their visions, purposes and key activities.

The economy

Higher education institutions are developing collaborative working relationships with industry in the production of cutting-edge knowledge and a good quality workforce. As the examples of the three universities, Cambridge, Manchester and Warwick show, the development of market-led policies has led higher education effective and efficient in these respect and re-oriented them to be aware of national and international competition. Cambridge is working hard to maintain its highest levels of excellence in learning and research. Manchester is preparing for a new advance, to be a world-leading research institution by 2015. Warwick still carries on its innovative changes in order to establish itself as an entrepreneurial centre of knowledge and technology. Despite the different characteristics of each university, the three universities share common objectives to achieve in the coming years: education should be developed in relation with the changing labour market, R&D should be promoted to compete on the international market, and the management of the university should be as efficient as possible.

Overall, the analysis of the changes in higher education in the 1990s by looking at the four features of the Net Model was able to illustrate the direction of changes. However, the political discussion of economic needs and their consequence for higher education policies is still an on-going process. Therefore it is almost impossible to predict future development with any assurance.

In the next chapter, the thesis will examine the changes in Korean higher education institutions in the 1990s.

ENDNOTES FOR CHAPTER SEVEN

¹ The development of the English binary higher education system (different from German *Fachhochschulen* and French *Instituts Universitaires de Technologie*) from 1965 influenced other country's technical education, such as Austria and Finland. The non-university form of higher education was specifically aimed to create institutions to serve new groups of students and to respond to increasing economic needs. Pratt, J. (1999), Policy and Policymaking in the Unification of Higher Education, in *the Journal of Education Policy*, Vol.14, No.3, pp. 257-258.

² Tasker, M. and Packham, D. (1994), Changing Cultures? Government Intervention in Higher Education 1987-1993, in *British Journal of Educational Studies*, Vol.42, No.2, p. 156.

³ The Universities and Colleges Admission Service (UCAS) were formed by the merger of the Universities Central Council on Admission (UCCA) and the Polytechnics Central Admission system (PCAS) in 1993. McLaren, A. (2001), The Admission System in Warner, D. and Palfreyman, D. (eds.), in *The State of UK Higher Education*, SRHE & Open University Press: Buckingham, p. 118.

⁴ The development of polytechnics contributed to the expansion of higher education, but also challenged the English tradition of higher education. Pratt, J. (1999), *ibid.*, pp. 259-260.

⁵ Henkel, M. (2000), *Academic Identities and Policy Change in Higher Education*, Jessica Kingsley Publisher: London and Philadelphia, pp. 32-33.

⁶ The growing political interests in the values of market and the economic need worked for the success of polytechnics, which were committed to meeting the economic demands. This became a good model for universities. Pratt, J. (1999), *ibid.*, pp. 261-262.

⁷ The strengths of the polytechnics - low cost, open access and the concern on the teaching quality - did not appeared as powerful merits any longer for the government in managing the mass higher education system. Pratt, J. (1999), *ibid.*, p. 267.

⁸ Pratt, J. (1999), *ibid.*, p. 141.

⁹ Scott, P. (1995), *The Meanings of Mass Higher Education*, SRHE & Open University Press: Buckingham, p. 11 and 26.

¹⁰ Kogan, M. and Hanney, S. (2000), *Reforming Higher Education*, Higher Education Policy Series 50, Jessica Kingsley Publisher: London and Philadelphia, pp. 75-76.

¹¹ The proportion of women and men studying for a first degree had become equal by the mid 1990s. The majority of students are now over the age of 21. About 30 per cent are over 30 of entrants to higher education. In the post-1992 universities, 65 per cent are mature students. Kogan, M. and Hanney, S. (2000), *ibid.*, p. 53.

¹² The first official concern about a demand-driven expansion of higher education (not a demographically-driven plan) was raised in the Brown Paper in 1978. The introduction of the 1981 budget cut in higher education was to save public spending on higher education not to reduce the number of higher education institutions. Until 1984, no politicians expected an increase in the participation rate in higher education. In fact, the downward trend of demographic change showed an opposite sign. Kogan, M. and Hanney, S. (2000), *ibid.*, pp. 72-73.

¹³ Universities are asked to accommodate diversified needs of higher education as more varied ethnic groups and age groups are entering it. These diversification trends are expected to continue. Therefore higher education institutions have to reconsider their existing programmes, administration processes and other services. Sporn, B. (1999), *Adaptive University Structure- an analysis of Adaptation to Socioeconomic Environments of US and European Universities*, Higher Education Policy Series 54, Jessica Kingsley Publisher: London and Philadelphia, p. 12.

¹⁴ Hodgson, A. and Spours, K. (1999), *New Labour's Educational Agenda: Issues and Policies for Education and Training from 14+*, Kogan Page: London, p. 96.

¹⁵ Scott, P. (1997), *ibid.*, pp. 25.

¹⁶ Universities have been asked to provide diversified education programmes, such as taught master courses and professional (practical) doctoral courses. The part-time studying at every-level was also became a major form in higher education. In academic year of 1986-1987, the part-time home students in UK higher education already reached 39 per cent. Jarvis, P. (2001), *Universities and Corporate Universities – the Higher Learning Industry in Global Society*, Kogan Page Ltd: London, p. 7.

¹⁷ Terms like 'partnership' and 'corporate classroom' are good examples of this new phenomenon. Scott, P. (1995), *ibid.*, p. 69.

¹⁸ Jarvis, P. (2001), *ibid.*, p. 17.

¹⁹ Military competition was replaced by economic competition as the cold war ended in the early 1990s with the fall of the Berlin Wall and the collapse of the former Soviet Union. Miller, H. (1995), *The Management of Change in Universities: Universities, State and Economy in Australia, Canada and the United Kingdom*, SRHE and Open University: Buckingham, p. 57.

²⁰ Dill, D. D. and Sporn, B. (eds.), (1995), *Emerging Pattern of Social Demand and University Reform: Through a Glass Darkly*, IAU Press Pergamon: Oxford, New York and Tokyo, p. 51.

²¹ The government attempted to evaluate the performance of all parts of the public sectors, searching for ways of improving efficiency and effectiveness in using public funds. Jones, J. and Taylor, J. (1990), *Performance Indicators in Higher Education*, The Society for Research into Higher Education & Open University Press: Buckingham, p. 1.

²² Department of Education and Science, (1985), *The Development of Higher Education into the 1990s*, p. 3.

²³ Ibid., p. 4.

²⁴ Committee of Vice-Chancellors and Principles (CVCP), (1987), *Performance Indicators in Universities: A Second Statement by the joint CVCP/UGC Working Group*, p. 3.

²⁵ Jones, J. and Taylor, J. (1990), op. cit., pp. 4-5.

²⁶ CVCP, (1987), ibid., p. 4.

²⁷ Ibid., p. 3.

²⁸ Ibid., p. 5.

²⁹ The 1987 White Paper explained the government's new policies on higher education. This paper focused on a new funding system for higher education, access to higher education and quality and efficiency for higher education. Department for Education and Science (DfES), (1987), *Higher Education: Meeting the challenge*, p. 1.

³⁰ Four aims of higher education since the Robbins Report were instruction in skills, the promotion of general powers of mind, the advanced of learning and the transmission of common standards of citizenship. Although meeting the needs of the economy was not the sole purpose of higher education, the government began seeking the achievement of skills, knowledge and workforces relevant to the economy. Quoted from Council of Local Education Authorities, (1987), *Answering the Challenge* CLEA's response to the Government's White Paper on the Future of higher Education, p. 8.

³¹ Department for Education and Science (DfES), (1987), *Higher education: Meeting the Challenge*, p. 2.

³² DfES, (1987), ibid., p. 9.

³³ Ibid.

³⁴ In 1986-1987 higher education in the UK cost £3.7 billion (£1252 million for polytechnics and colleges, £1,782 million for universities and £661 million for student maintenance) which was 2.6 per cent of public expenditure and 1 per cent of GNP. This figure does not include spending by the Research Council. The government's expenditure plan for 1987-1988 already increased to £4.1 billion. DfES, (1987), op. cit., p. 14.

³⁵ Average unit costs between 1980-1981 and 1986-1987 fell by 5% in universities and 15 % in polytechnics and colleges. DfES, (1987), ibid., p. 15.

³⁶ Chancellor of the Duchy of Lancaster, (1993), *Realising our Potential : a Strategy for Science, Engineering and Technology*, HMSO: Great Britain, pp. 1-2

³⁷ The government was concerned that the Research Council could aid effectively by selecting the best possible research proposals and investing in the right place by developing criteria for scientific excellence. Chancellor of the Duchy of Lancaster, (1993), *ibid.*, p. 26.

³⁸ Chancellor of the Duchy of Lancaster, (1993), *ibid.*, p. 3.

³⁹ The basic research, with long time scale, rapid changes in external factors, high cost and difficulties in obtaining intellectual rights, did not attract private investment. However, the government recognised the importance of investment in universities as centres of basic research. Chancellor of the Duchy of Lancaster, (1993), *ibid.*, pp. 24-25.

⁴⁰ Chancellor of the Duchy of Lancaster, (1993), *ibid.*, pp. 11-12.

⁴¹ Hodgson, A. and Spours, K. (1999), *New Labour's Educational Agenda: Issues and Policies for Education and Training from 14+*, Kogan Page: London, p. 85.

⁴² Watson, D. (2007), *Whatever Happened to the Dearing Report? UK higher education 1997-2007*, Institute of Education University of London, p. 8.

⁴³ National Committee of Inquiry into Higher Education, (1997), *Higher Education in the Learning Society- Summary Report*, Great Britain, p. 9.

⁴⁴ DfES, (2003), *The Future of Higher Education*, p.10.

⁴⁵ Chancellor of the Duchy of Lancaster, (1993), *op. cit.*, p. 1.

⁴⁶ Hodgson, A. and Spours, K. (1999), *ibid.*, p. 97.

⁴⁷ National Committee of Inquiry into Higher Education, (1997), *ibid.*, p. 8.

⁴⁸ *Ibid.*, p. 3.

⁴⁹ *Ibid.*, pp. 12-13.

⁵⁰ *Ibid.*, p. 21.

⁵¹ Parliamentary Office of Science and Technology, (1997), *The Future of Dual Support – Report Summary*, p. 1.

⁵² Parliamentary Office of Science and Technology, (1997), *ibid.*, p. 2.

⁵³ *Ibid.*

⁵⁴ National Committee of Inquiry into Higher Education, (1997), *op. cit.*, p. 21.

⁵⁵ From 1990 to 1996, public spending on higher education was geared to the GDP growth rate. However, the mass expansion of student numbers created a need to seek

additional funds for higher education. Therefore politicians generally accepted the idea that more contributions from benefactors had to be made to higher education. The Higher Education Funding Council for England, (1997), *Response to Dearing Report* – the Response by the Higher Education Funding Council for England to the Report of the National Committee of Inquiry into Higher Education, p. 5.

⁵⁶ Driver, S. and Martell, L. (2006), *New Labour*, 2nd edition, Polity Press: Cambridge and Malden, p. 131.

⁵⁷ Barr, N. and Crawford, I. (2005), *Financing Higher Education: Answers from the UK*, Routledge: London and New York, pp. 15 and 201-202.

⁵⁸ Department for Education and Science, (1987), *Higher education: Meeting the Challenge*, p. 22.

⁵⁹ Neave, G. (1998), The Evaluative State Reconsidered, in *European Journal of Education*, vol.33, No.3, p. 266.

⁶⁰ Neave, G. (1998), *ibid.*, p. 269.

⁶¹ Quality is related to the objective of higher education; efficiency is related to the rapidity and the costs and benefits. Bleiklie, I. (1998), Justifying the Evaluative States: New Public Management Ideas in Higher Education, *European Journal of Education*, Vol. 33, No.3, p. 307.

⁶² Neave, G. (1998), *ibid.*, p. 275.

⁶³ *Ibid.*, p. 279.

⁶⁴ Bleiklie, I. (1998), *ibid.*, p. 307.

⁶⁵ An administration team is formed of senior academics, former academics, the registrar, the bursar and the librarian. Gledhill, J. (2001), The Modern English Universities, in Warner, D. and Palfreyman, D. (eds.), *The State of UK Higher Education*, SRHE & Open University Press: Buckingham, p. 99.

⁶⁶ Tasker, M. and Packham, D. (1994), Changing Cultures? Government Intervention in Higher Education 1987-1993, in *British Journal of Educational Studies*, Vol.42, No.2, p. 160.

⁶⁷ Henkel, M. (2000), *op. cit.*, p. 43.

⁶⁸ Deem, R. (2001), Globalisation, New Managerialism, Academic Capitalism and Entrepreneurialism in Universities: Is the local dimension still important?, *Comparative Education* Vol.37, No.1, p. 10

⁶⁹ Universities considered cultural (changes in the idea of knowledge and knowledge production), social (diversified student groups) and economic (reduction of public funding) aspects in adapting the new idea of managerialism. Deem, R. (2001), Globalisation, New Managerialism, Academic Capitalism and Entrepreneurialism in

Universities: Is the local dimension still important?, *Comparative Education* Vol.37, No.1, p. 11.

⁷⁰ Williams explains that the term, “Total Quality Management” was initially influenced by the relative success of Japanese economic strategy of ‘quality control’. It began to be applied spontaneously to higher education institutions in the United States and the United Kingdom in order to respond to the financial pressure during the 1980s. The pressure led higher education institutions into a competitive market situation, putting them in the same boat as commercial enterprises. Williams, G., (1993), Total Quality Management in Higher Education: panacea or placebo? *Higher Education*, Vol.25, No.3, p. 229.

⁷¹ Henkel, M. (2000), *Academic Identities and Policy change in Higher Education*, Higher Education Policy 46, Jessica Kingsley Publisher London and Philadelphia, p. 57.

⁷² Ibid.

⁷³ Even in this golden period, the rate of productive growth in Britain was slightly lower than in most West European countries. Broadberry, S. (2004), The Performance of Manufacturing, in Floud, R. and Johnson, P. (eds.) *The Cambridge Economic History of Modern Britain Vol.3: Structural Change and Growth, 1939-2000*, Cambridge University Press: Cambridge, p. 57.

⁷⁴ Kitson, M. (2004), Failure Followed by Success or Success Followed by Failure? A Re-examination of British Economic Growth since 1949, in Floud, R. and Johnson, P. (eds.) *The Cambridge Economic History of Modern Britain Vol.3: Structural Change and Growth, 1939-2000*, Cambridge University Press: Cambridge, p. 48.

⁷⁵ Ibid.

⁷⁶ Ibid., p. 49.

⁷⁷ Ibid.

⁷⁸ Ibid., p. 51.

⁷⁹ Ibid., p. 52.

⁸⁰ O’Mahony, M. (2004), Employment, Education and Human Capital, in Floud, R. and Johnson, P. (eds.) *The Cambridge Economic History of Modern Britain Vol.3: Structural Change and Growth, 1939-2000*, Cambridge University Press: Cambridge, pp. 123-124.

⁸¹ O’Mahony, M. (2004), op. cit., p. 125.

⁸² Ibid., p. 126.

⁸³ Hatakenaka, S. (2004), *University-Industry Partnerships in MIT, Cambridge and Toyko: Storytelling across Boundaries*, Routledge Falmer: New York and London, p. 28.

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- ⁸⁴ Hatakenaka, S. (2004), op. cit., p. 31.
- ⁸⁵ Department of Education and Science, (1985), ibid., p. 19.
- ⁸⁶ Ibid., p. 21.
- ⁸⁷ Hatakenaka, S. (2004), ibid., p. 32.
- ⁸⁸ Ibid., p. 31.
- ⁸⁹ Department of Education and Science, (1985), op. cit., p. 21.
- ⁹⁰ Hatakenaka, S. (2004), ibid., p. 29.
- ⁹¹ Rowe, D. (2002), *Science Parks in the UK Today and Tomorrow*, presented to APTE Conference, p.1.
- ⁹² Hatakenaka, S. (2004), ibid., p. 29.
- ⁹³ Rowe, D. (2002), ibid., p.1.
- ⁹⁴ Ibid., p. 3.
- ⁹⁵ Ibid., p. 4.
- ⁹⁶ Sporn, B. (1999), *Adaptive University Structures- an analysis of adaptation to socio-economic environments of US and European universities*, Higher Education Policy Series 54 Jessica Kingsley Publisher: London and Philadelphia, p. 7.
- ⁹⁷ Clark, B.R. (1998), *Creating Entrepreneurial Universities: Organizational Pathways of Transformation*, IAU Press, Pergamon: London, p. 4.
- ⁹⁸ Ibid.
- ⁹⁹ www.admin.cam.ac.uk -University of Cambridge, Nov. 2001.
- ¹⁰⁰ Ibid.
- ¹⁰¹ www.manchester.ac.uk/aboutus/facts/declaration, 2007.
- ¹⁰² The University of Manchester, (2006), *Towards Manchester 2015 – the strategic plan of the University of Manchester*, pp. 6-15.
- ¹⁰³ www2.warwick.ac.uk/about/40/history/80s, 2007.
- ¹⁰⁴ Ibid.
- ¹⁰⁵ Ibid.
- ¹⁰⁶ Ibid.
- ¹⁰⁷ www2.warwick.ac.uk/about/vision2015/
- ¹⁰⁸ www.cam.ac.uk/cambuniv/research.html, 2007.
- ¹⁰⁹ www.admin.cam.ac.uk/offices/planning/data/facts/2006facts_and_figures_poster.pdf, 2007.
- ¹¹⁰ www.cam.ac.uk/cambuniv/business/

¹¹¹ www.manchester.ac.uk/research/about/strategy/

¹¹² www.manchester.ac.uk/research/about/strategy/

¹¹³ www.manchester.ac.uk/research/about/funding/

¹¹⁴ The University of Manchester, (2006), *Towards Manchester 2015 – the strategic plan of the University of Manchester*, p. 7.

¹¹⁵ www.manchester.ac.uk/research/about/strategy/

¹¹⁶ www.manchester.ac.uk/business/working/

¹¹⁷ www2.warwick.ac.uk/research/strategy/

¹¹⁸ Ibid.

¹¹⁹ Ibid

¹²⁰ www2.warwick.ac.uk/business/

¹²¹ www2.warwick.ac.uk/about/vision2015/research/

¹²² According to Deem, Clark's study of five universities describes many of the features of managerialism, even though he does not use the same terminology. Deem shows similar features such as the search for new, more effective and efficient ways of doing things (teaching large-number of students, setting up new organisational forms: research centres closely with industry). Deem, R. (2001), Globalisation, New Managerialism, Academic Capitalism and Entrepreneurialism in Universities: Is the local dimension still important?, *Comparative Education* Vol.37, No.1, p. 12.

¹²³ Deem argues that "all three concepts, of new managerialism, entrepreneurial universities and academic capitalism, are distinguished from each other in the process of intellectual formation. This is despite some degree of overlap. All concerned with the influences on academic institutions and identification of the origins of external factors linked to international development or globalisation. However, it seems likely that social relation and human culture will continue to impact on how different universities respond to those challenges of material culture and environment, and respond to international and global pressure". Deem, R. (2001), Globalisation, *ibid*, pp. 12-18.

¹²⁴ Slaughter, S. and Leslie, L. (1997), *Academic Capitalism – Politics and Policies and Entrepreneurial University*, the John Hopkins University Press: Baltimore and London, p. 9.

¹²⁵ Bleiklie, I. (1998), Justifying the Evaluative States: New Public Management Ideas in Higher Education, *European Journal of Education*, Vol. 33, No.3, pp. 299-230.

CHAPTER EIGHT

KOREAN HIGHER EDUCATION IN THE RISE OF A KNOWLEDGE-BASED ECONOMY

The purpose of this chapter is to describe the new shapes of Korean higher education and the relationships between higher education, the state and the economy in the context of the emergence of a knowledge-based economy from the 1990s onwards.

Firstly, the narrative section of the chapter will describe how the shifting focus on the choice of knowledge and the growing emphasis on the role of research in higher education institutions in relation to national economic benefits affected the latest policy development in South Korea. Secondly, it will look at how these new policies have influenced the restructuring process of three Korean universities since the 1995 Education Reform, which affected higher education's relation to the state and the economy.

The argument of the chapter is that political pressure on higher education institutions to serve the diversifying needs for higher learning created collaborative relationships between higher education, the state and the economy. The increased demands for the production of advanced knowledge and the commercialisation of that new knowledge for national development encouraged the government to redefine the purpose and role of Korean higher education. The political redefinition affected teaching and research in higher education institutions and the management of these institutions

CHOICE OF KNOWLEDGE

In this section, the chapter will examine how the 5.31 Education Reform in 1995 affected priorities in the choice of what kind of knowledge should be taught and produced in higher education.

A Presidential Committee on Education Reform was created in 1994.¹ The committee held public hearings and collected professional opinions about the provision of education for the next century. The committee proposed three aims for education reform: 1) reform should assist changes from an industrial society to a knowledge-information society; 2) it should ease the current educational problems of Korean society; and 3) it should increase the efficiency of education by restructuring the management system.² The committee finally presented the first reform proposal: the 5.31 Education Reform in May 1995. Three more proposals followed during the period 1995 to 1997. Table 8.1 shows a summary of the basic aims of these four proposals all together.³

Table 8.1 Education Reform Proposals (1995-1997)

Proposal		Basic aims
The 1 st Proposal	31 st May 1995	<ul style="list-style-type: none"> • learner-centred education system • diversified and specialised education system • self-regulated and responsible management system • respect 'freedom' and 'equality' in education • open education system with information network • improve the quality of education
The 2 nd Proposal	9 th February 1996	<ul style="list-style-type: none"> • establish a new vocational education system • introduce new curriculum to primary and secondary education • introduce specialised post-graduate schools • reform educational laws and regulations
The 3 rd Proposal	20 th August 1996	<ul style="list-style-type: none"> • local education authority plan • teacher education plan • private education support plan • education information system plan • social education system plan
The 4 th Proposal	2 nd June 1997	<ul style="list-style-type: none"> • civil education plan • improvement plan for primary and secondary education, and higher education • education for the information society • public system for child education • reduction of private expenses on education

Source: The Presidential Commission on Education Reform, (1998), *한국교육 백서 1994-1998*, [The White Paper on Korean Education Reform 1994-1998], pp. 76-77.

These proposals show that the government believed that education should meet the needs of the new age, and the local education authorities should have more power in the management of education institutions. Therefore the government tried to abolish the centralised control system of the previous bureaucratic governments, and supported the creation of a self-regulated management system and specialised educational programmes.

Based on these principles, the government set four aims for higher education: 1) the diversification and specialisation of higher education institutions, 2) the improvement of the entrance examination system for university, 3) the enhancement of the autonomy of private higher education institutions, and 4) the internationalisation of university research.⁴

1. Diversification and specialisation of higher education institutions

The government noted that higher education was not meeting the changing economic needs of higher learning in the 1990s. The development of standardized higher education improved its general quality, but failed to supply highly specialised human resources for the changing labour market.⁵ The government promoted four different forms of institution for: 1) academic teaching, 2) vocational teaching, 3) postgraduate research and 4) postgraduate professional teaching. In addition, the government also encouraged the creation of professional graduate schools such as Medical Schools, Law Schools and Institutions for Advanced Technology.⁶ The promotion of the specialisation of each institution was intended for both improvement of the quality of educational courses and research activities.

2. New entrance examination system for higher education

In the past, the shaping of the selection process of higher education had been one of the hardest choices for Korean governments to make, as it affected school education significantly. The 5.31 reform reshaped the entrance examination system to allow universities to develop new criteria for selection.⁷ For example, universities could set different priorities in the selection process and introduce their own interviews and tests. The new system also permitted students to make multiple choices in their applications. These changes were relevant to the third aim of higher education, the enhancement of institutional autonomy.

3. Enhancement of autonomy of private institutions

Strong government control held back the growth of institutional autonomy in Korean higher education system (in both public and private sectors).⁸ However, the improvement of institutional autonomy was important for the development of diverse forms of higher education institutions. The government therefore employed free competition for students, research projects and research funds from industry to improve institutional autonomy in student selection, curriculum design and management system.

4. Internationalisation of university research

The government recognised the need to improve research activities in universities, and hence promoted R&D in them. Firstly, the government created a new academic information centre, upgraded scientific research facilities and initiated financial aid programmes for national and international research projects in universities.⁹ Secondly, it developed evaluation systems for research projects. As public funding for higher education was minimal, the government initiated a competition for

financial aid programmes and introduced an evaluation system to monitor the progress of research.¹⁰ Table 8.2 on the next page shows these new aid programmes.¹¹

Table 8.2 Government’s Financial Aid Programmes (1996-2000)

Year	Newly initiated aid programmes
1996	Aid programme for best-performance university Aid for mechanical equipment in science and engineering research institutions Aid for post-doctoral programmes Aid for special programmes of international expertise Aid for co-research projects with foreign academics
1997	Aid for universities in the provinces Aid for industrial universities
1999	Brain Korea-21 Business
2000	Aid for restructuring national universities

Source: Song, Kichang, (2000), The Issues and Improvement Direction of University Aid Programmes, in *교육재정경제연구*, [The Journal of Economics and Finance of Education], Vol.9, No.2, p. 7.

The two programmes initiated in 1997 in Table 8.2 were intended to support institutions with a relatively weak performance. However, in other cases the open competition for extra funding brought extra benefits to top universities.¹² The government also increased the annual budget for higher education from 7,005 million *won* in 1995 to 10,597 million *won* in 1996.¹³ The extra aid programmes and the increased annual budget promoted research activities in higher education.

Overall, the 5.31 Education Reform was a government-led reform plan which was intended to improve the quality of higher education by increasing institutional autonomy in the selection process and diversifying institutions’ basic activities. The significance of the reform was the promotion of research activities in universities. The increased investment in research in universities, along with the upgrading of science and engineering departments raised institutions’ attention to R&D, and thus affected the

roles of higher education. The changes in the key roles of higher education will be examined in the next section.

PRIMARY ROLES OF HIGHER EDUCATION

The higher education reform policies which promoted the development of institutional differentiation and research activities affected ideas about the appropriate roles of higher education.

Teaching had been the key activity of Korean higher education until the 1980s.¹⁴ The traditional role of higher education was the education of social and political elites.¹⁵ The growth of national industry and higher education, in the 1980s in particular, widened the role of higher education to educate broader ranges of professional elites such as scientists, engineers, ICT technicians and business leaders.

However, increasing international economic competition, and growing world trade and the rise of knowledge-based industries highlighted the deficit of advanced scientific knowledge and the latest technology in South Korea.¹⁶ As the quality of the labour market and the production of new knowledge depended largely on the quality of higher education, the government was concerned about the development of professional education and research activities in higher education.¹⁷ Since the 5.31 Reform, the government has developed new policies such as *The New Human Power Development Plan* and *The New Economy Five-Year Development Plan* to meet the newly created economic demands.¹⁸

The government's concern about the production of new knowledge in the 1990s brought positive changes to research activities in higher education institutions.¹⁹ The

introduction of the 5.31 Education Reform initiated two major government-led research projects in universities and created a new research centre.²⁰ Firstly, a ‘national support plan’ for eight engineering universities was designed. The Ministry of Education chose the best eight engineering universities in each province, and allocated 2,000 billion *won* for five years from 1994. Secondly, a national support policy for top graduate schools was developed. The Ministry of Education also picked five graduate schools and offered financial support of 1,000 billion *won* for five years from 1995. Thirdly, the Scientific Research Centre, under the Department of Science and Technology, and the Engineering Research Centre were established to support research in higher education.

Table 8.3 Research Investment

(amount: billion *won*)

(One sterling pound was equivalent to about 1,200 *won* in 1997, before the Asian Economic Crisis and increased to an average of 1,900 in 2007.)

Year	Total research investment	Research institution		University		Industry	
		Investment in research	Ratio of total (%)	Investment in research	Ratio of total (%)	Investment in research	Ratio of total (%)
1986	16,069	4,209	26.2	1,643	10.2	10,217	63.6
1988	24,542	5,881	24.0	2,328	9.5	16,333	66.5
1990	33,499	7,311	21.8	2,443	7.3	23,745	70.0
1992	49,890	10,603	21.2	3,029	6.1	36,258	72.7
1994	78,947	15,406	19.5	6,089	7.7	57,452	72.8
1996	108,781	18,956	17.4	10,188	9.4	79,636	73.2
1998	113,366	20,994	18.5	12,651	11.2	79,721	70.3
2000	138,485	20,320	14.7	15,619	11.3	102,547	74.0
2002	173,252	25,526	14.7	17,971	10.4	129,754	74.9
2004	221,853	-	-	-	-	-	-
2005	241,554	-	-	-	-	-	-

Source: Min, Chulku *et al.*, (1997), *대학연구 가능성 조성을 위한 정책모색* [In Search of Policy Tools for University Research Capability Building], Institute of Science and Technology Policy: Seoul, p. 39. Data in 1996-2002: Korea Institute of S&T Evaluation and Planning, (2003), *과학기술 연구 활동 조사 보고서*, [Report on the Survey of Research and Development in Science and Technology], Ministry of Science and Technology: Seoul, p. 22. Data in 2004-5: Science and Technology Statistics. www.most.go.kr

Table 8.3 shows the steadily increasing investment in research in Korea during the period 1986-2005. This investment grew to 241,554 million won (fifteen times more than in 1986) in 2005.²¹ However, university research in Korea was still much smaller than the amount of investment in university research in many European countries.²² Instead, Korean industry led research investment. Nonetheless, the growing total investment in research supported the development of diverse forms of research activities inside and outside universities.²³

Overall, the 1995 Education Reform policies raised attention to knowledge production in higher education and produced improved governmental support systems and funding for research activities in it.

Soon after the introduction of the reform policies, however, Korea faced the Asian economic crisis of 1997. The crisis underlined the weaknesses in the economy, such as the over-dependency on exports and the lack of investment in value-added production. The government therefore, reviewed the 5.31 reform plan to accelerate the development of research-oriented institutions.²⁴

In 1998, the Ministry of Education presented an altered plan for higher education, *The People's Government- The Direction of Educational Reform*, to cope with the economic crisis.²⁵ The Report specified a plan for investing 12,500 million won in research universities, 10,000 million won in teaching universities and an extra 2,500 million won in basic science research between 1999 and 2003.²⁶ For the promotion of research activities in science and engineering, the Ministry of Education designed the Brain Korea 21 Plan (BK21), which would invest an additional 2,000 million won in

research in basic science and advanced engineering each year from 1999 to 2005.²⁷ The Ministry of Education presented the detailed business plan for BK21 in April 1999, despite strong criticisms of the selection process from academics in social science studies and in low performing universities.²⁸ Table 8.4 shows the 14 universities, which were selected to participate in twenty-six research projects of the BK21.

Table 8.4 The BK21 Plan - areas and participant universities

Field of study	Number of project	Selected universities Leading university (participant university)
Information technology	3	Seoul National (Korea)
		POSTECH (Kyoungbuk)
		KIST(Kwnagju Institute of Science and Technology)
Biology	3	Seoul National (Hanyang)
		POSTECH (Ewha Women)
		KIST (Kwangju IST)
Mechanical engineering	3	Seoul National (Hanyang)
		POSTECH (Ewha Women)
		KIST (Kwangju IST)
Material engineering	2	Seoul National (Hanyang)
		KIST (Kwangju IST)
Chemical engineering	2	Seoul National (POSTECH)
		KIST (Kwangju IST)
Medical engineering	2	Seoul National
		Yonsei (Korea)
Agricultural biology	2	Kyongsang (Myoungji)
		Seoul National (Kyounghea)
Physics	2	Seoul National (sungkyunkwan)
		Yonsei
Chemistry	2	Seoul National (Korea)
		KIST (Sungkyunkwan)
Life engineering	1	Korea
Earth science	1	Seoul National (Korea)
Mathematics	1	Seoul National (Yonsei)
Building technology	1	Seoul National (Hanyang)
Molecular science	1	Aju
Total	26	14 universities

Source: Park, Bukwon, (2000), The Expected Failure: Restructuring Seoul National University by the Brain Korea 21, *한국 교육 연구*, [Korean Educational Research], Vol.6, No.1, p. 36.

Table 8.4 shows that Seoul National University (SNU) took the leading role in twelve projects out of twenty six. The government gave extra support to SNU to transform

itself into a research institution by expanding graduate schools and research activities, in science and engineering in particular, to encourage other universities to follow. The selected universities were asked to develop specialised education programmes and advanced research projects, working with local industries in each project.²⁹

The first stage of the BK 21 1999-2005 was completed in 2005. It was successful in supporting young researchers and implementing new settings for the promotion of good quality research activities.³⁰ The second stage of the BK 21 for the years 2006 to 2012 was launched in 2006. The Second BK 21 Plan is investing 2, 300 million *won* to support twenty thousand young researchers (seventeen thousand in natural sciences and technology, and three thousand in arts and social sciences) over the next seven years.³¹

As the government has offered major financial support for research, Korean universities are now better geared to produce advanced knowledge (Mode 2 Knowledge). Especially as a result of the emphasis on R&D and the commercialisation of new knowledge, institutions have strengthened their links to business and industry; institutions work with industries and businesses, and respond better to market needs in the development of education programmes and research plans. Thus as 5.31 reform policies stressed research in universities, they have influenced the priorities in the roles of higher education institutions.

In the next section, the political changes which affected the development of reform policies for higher education in the 1990s will be examined.

HIGHER EDUCATION AND THE STATE

The era of the 1990s marked a political turning point in South Korea, as the authoritarian military governments from 1961 to 1992 ended. The creation of the non-military government signalled the strengthening of democratic values in society. From this time, the quality of life became one of the most important political issues, and the creation of civil society, with the improvement of human rights, equal opportunities and widened choices, became the key political concern.

Firstly, for example, Kim Youngsam named his government as the '*Munmin* [citizens'] government' and carried out a wide range of social reforms.³² The government introduced the 'New Human Power Development Plan' and the 'New Economy Five-year Plan'.³³ These two plans were intended to enhance the economic activities of large entrepreneurs in national and international markets and to improve the quality of the workforce in order to support the economic plan.³⁴ Secondly, the government paid attention to the 'global society' and the 'globalisation of the nation'.³⁵ It set out a national vision for the future, and highlighted the growing roles of Korea as a member of the wider international community.

These changing political values affected the direction of national education in Korea in the 1990s. For example, the improvement of the quality of school education and the widening of choices for students and parents in education were emphasised. In higher education, as the 5.31 reform stressed, the improvement of the quality of education and research was promoted, considering the demand of national economy.

However, the economic crisis at the end of 1997 created a need to re-consider the national development strategy. The new government of Kim Daechung, which was

formed in February 1998, therefore focused on restructuring the economic system under the surveillance of the International Monetary Fund.³⁶ It announced 'one hundred tasks' to manage the economic crisis.³⁷ Kim presented a national vision of a 'knowledge-based nation' and strategies for the economic crisis.³⁸ The development of a student-centred and diverse education system were still important in education, however, the new government emphasised the role of higher education in the building of a knowledge-based nation.

The government reviewed the 5.31 reform and identified the weaknesses. Firstly, the governmental control on higher education was still high, as it intervened in the selection process of institutions.³⁹ The "top-down" reform policies, which were geared to support economic growth, were not effective for the improvement of the quality of education itself.⁴⁰ For example, the "pursuit of excellence in education" reinforced elite education, as it focused narrowly on the enhancement of national competitiveness in the world market.⁴¹ Secondly, the increase in the public budget for education was still small. The educational budget in 1994 was 3.75% of GNP, and the previous government planned to raise it to 5% of GNP.⁴² However, the rate of increase of the total education budget actually fell, and missed the target of 5% of GNP.⁴³ The introduction of an unequal distribution of funding based on competition evaluation widened the existing gap in the quality of education among institutions. Based on this review, the new government modified the 5.31 reform to fit in to the condition of the Asian economic crisis.⁴⁴

A New Vision of Education for the 21st century

The government maintained the key ideas of the reform policies, but modified them partially to respond to the economic crisis.⁴⁵

The Minister of Education, Lee Haechan, announced that he would adapt the key principle of neo-liberalism in education policy, which he refers to as competition according to the market.⁴⁶ The government also tried to establish a balance between ‘democratic values’ and the ‘market economy’ in education policies.⁴⁷ It defined “democratic values in education” as offering educational choices for the learners and encouraging wider participation in educational administration, and the “market economy of education” as meeting the changing needs of consumers (students, parents, local communities, entrepreneurs and the national economy).⁴⁸ The government therefore stressed the ‘bottom to top’ process of policy development and created a ‘Committee for a New Education Community’ in July 1998.⁴⁹ The committee was constituted of teachers, academics, parents and members from non-governmental organisations. Similar groups, “Education Communities”, were also created to support local school management in the boroughs.⁵⁰

The particular interest in democratic values, communities and learners’ choices in education was reflected in the tasks for education shown in Table 8.5, on the next page. The principles for the educational tasks in Table 8.5 show the government’s specific concern for widening participation in educational communities.⁵¹ Table 8.5 also highlights four tasks for higher education: a new entrance examination, a new management system, new administration and finance systems and closer relationships between university and industry.

Table 8.5 The Key Tasks for Education, July 1998

	Main tasks
Principles for Education reform	Establish 'community for new education' for changes 'from the bottom' Set up 'school management communities' and expand their roles Establish links between the school and the local community
Problem solving	Reshape university entrance examination system Regain respect of teachers and trust in school education Prevent school violence Prevent irrational management of higher education
Restructuring Education system	Reform education administration and finance system Unify educational organisations Reform educational regulations Reform teacher education policy
Quality of labour	Establish system for raising high-quality specialists Establish relationship between the university and the industry Innovate in primary and secondary school education Establish information network for education

Source: Kim, Sungjae, (1999), *Kookmin's Government: The Evaluation and the Task of Education Reform of the First Year*, 평화논총, [Peace Forum], Vol.3, No.1, p. 172.

The government presented the White Paper, *People's Government: the Direction of Educational Reform* (for higher education) in August 1998⁵², *The Vision of Education 2002- Creation of New Culture of Schooling*, in October 1998⁵³ and *The Five Year Educational Development Plan*, in 1999.⁵⁴

The 1998 White Paper has three parts: 1) the aim and its implementation strategy, 2) the budget for restructuring higher education, and 3) the plan for the reforming of Seoul National University.⁵⁵ The proposal for Seoul National University was developed later into the BK 21 Plan.⁵⁶

Both 5.31 Reform and the statement on the Vision of Education 2002 emphasised the improvement of institutional autonomy in student selection, the promotion of research activities in higher education and the increase in public funding for research. These new higher education policies were ambitious, considering the

economic troubles in particular. However, they contributed to the improvement of the quality of education and research activities, and to the promotion of differentiation among higher education institutions.⁵⁷ The following Roh Moohyun government has not introduced any major changes in the key higher education policies, and has still maintained the political priority of the BK21 Plan and R&D investment. In addition, the government supported the development of small universities in the provinces and their links to local industries by the New University for Regional Innovation (NURI) Project.⁵⁸

Thus it can be summarised that the Korean governments during the last fifteen years (since the end of the military government) still played a leading role in the development of a new vision for higher education policy. However, the governments' focus shifted from political control to the quality of education. The key political issues were 1) the improvement of the quality of education and wider participation in the process of policy development and 2) the increase in public investment in R&D. Despite the economic difficulties, the quality and the diversity of higher education has improved, and most important of all, public investment in research has risen and there has been a good progress in R&D.

Thus, instead of using bureaucratic control, the government focused on the development of extra funding projects to improve the quality of higher education and research activities. Overall, the democratic development of South Korean politics affected relationships between the state and higher education.

In the next section, this chapter will discuss the economic influences on the development of higher education policy in order to examine the relationship between higher education and the economy.

HIGHER EDUCATION AND THE ECONOMY

Next, this chapter will examine how the Asian economic crisis influenced the Korean economy, and affected the relationships between higher education and the economy.

The economic crisis of 1997 put an end to the continued national economic development of Korea. The annual economic growth rate dropped immediately to –5 per cent.⁵⁹ Firstly, the value of the Korean currency in the international foreign exchange market fell sharply and paralysed most economic activities in Korea. Secondly, the economic crisis caused a tight money situation in the market, bankruptcies among Korean entrepreneurs and a high level of unemployment in a short period of time.⁶⁰

Many Korean economists and government officers looked for the causes of the 1997 economic crisis, and reached a consensus on the problems of the Korean economy.

First of all, the government-led economic growth for decades had accumulated problems in the market, and delayed the creation of free market principles.⁶¹ The government's policy of protecting a few large entrepreneurs, *Jaebol* was effective in mobilising the limited capital in the early industrialisation period.⁶² Korean *Jaebol* had indeed contributed to national economic development.⁶³ However, the particular relationship between the government and the *Jaebol*⁶⁴ damaged the application of free market principles and held back further economic development from the 1980s.⁶⁵ Although the 1997 crisis began with a finance and foreign exchange crisis, the fundamental problem of the existing economic practices and economic policies became a key concern for many Koreans.

Another key issue for the economy was the failure to restructure the national industries at the right time, when national economy was growing. During the 1980s and the early 1990s there were concerns about the imbalance between heavy and light industries, the lack of investment in value-added industries and the over-dependency on export-oriented industries.⁶⁶

However, despite the growing concern for the problems in the economic structure in the 1980s, it was not an easy task for the Korean government to modify or restructure the existing economic system, especially when the government faced growing union movements during the late 1980s.⁶⁷ The government's over-dependency on *Jaebol* and the *Jaebol*'s reluctance to reform their organisation contributed to the economic crisis in a way.⁶⁸ Therefore, the need to restructure the Korean economy was not new. The 1997 crisis on the economy pressured the government to bring real changes in the economic structure.⁶⁹

Firstly, the international pressure was high. The increased move towards standardisation in international trade pressured Korea to meet international regulations.⁷⁰ However, these international regulations clashed with the existing economic structures and practices in Korea.⁷¹ For example, the WTO limits all kinds of subsidy or supporting policies of governments; these had been the very strategy of Korean economic development. For example, the so called "winner-picking industry policy" was a protection policy of the government, which provided government subsidies and reductions in taxations for particular industries. The globalisation of economic activities, however, encourages free capital movement and investment, which would weaken the controlling power of the government over Korean entrepreneurs.

Secondly, the internal tension was also rising, as the economic structure and economic policy were breaking apart. It has been suggested that high economic growth in Korea ended in the early 1990s.⁷² This meant that the Korean government needed to develop new strategies for national economic development. However, the government struggled to develop alternative policies.

Table 8.6 The Changing Industrial Structure (%)

	1997	1998	1999	2000	2001	2002	2003
Agriculture	6.0	6.4	6.2	6.0	5.8	5.6	5.3
Manufacturing	25.7	25.4	25.8	25.7	25.4	25.2	24.9
Manufacture-related service	6.6	6.0	6.5	6.7	6.9	7.1	7.4
Service	61.8	62.2	61.5	61.6	61.9	62.2	62.4

Source: KEDI, (1998), *21 세기 고등교육의 변화와 전망* [The Changes and Prospects of 21st century Higher Education], KEDI: Seoul p. 47.

The Korean government carried out a close analysis of the state of the industrial structure. Table 8.6 shows the structural changes in Korean industry. The ratio of composition of agriculture and the manufacturing industries decreased, and the service–related manufacturing industries and service industries increased gradually.⁷³ In addition, the government encouraged investment in technology-based industries which were expected to produce value-added goods.⁷⁴

The Korean government also witnessed changes in the employment structure.⁷⁵ Table 8.7 on the next page, shows the direction of changes from 1990 and to its prospect in 2010.⁷⁶ Employment in the primary industries such as agriculture, fisheries and forestry dropped rapidly, while employment in tertiary industries increased by 50 per cent.

Table 8.7 The Ratio of Employment Structure (%)

	1990	1995	2000	2005	2010
Primary Industry	18.3	13.1	9.1	6.6	4.9
Secondary industry	27.5	23.1	23.0	22.2	21.0
Tertiary industry	54.2	63.8	67.9	71.2	74.1
Total	1000.0	100.0	100.0	100.0	100.0

Source: KEDI, (1996), Korean Education Vision 2020 - Mega Trends in Millennial Transformation and its Implications, KEDI: Seoul, p. 111.

Primary industry includes agriculture, fisheries, forestry and mining. Secondary industry refers to manufacturing, electricity, gas and water. Tertiary industry includes construction, wholesale, hotel catering, transportation, warehousing, communication, finance, insurance, estate and other services.

In the sector of secondary industry, the percentage of employment reduced slowly.

However, secondary industry itself is restructuring, so that Korean economists expect a slow but a steady growth of heavy industry within the manufacturing sector in coming years. The government therefore predicted that professionals such as technicians, technologists, scientists and engineers will be in demands; this would require an alteration of the education system to meet the changes.

A policy analysis by Kim Youngwha, in Table 8.8 on the next page, shows the supportive relation of education to the development of industry in the past few decades.⁷⁷ During the last four decades, the national education system had supplied skilled and semi-skilled labour for industry, which had been a key resource for the successful national economic development.⁷⁸

Table 8.8 Korean Economic and Educational Development

Year	Economic Policy		Education Policy	
	Key Policies	Achievements	Key Policies	Achievements
1962-1971	1. Establishment of independent industrialisation 2. Development of import-substitute industries	1. fabrics, chemistry electronic 2. development of light industry	1. compulsory education plan 2. 1965-1975 expanded investment in primary education	1. compulsory primary education 2. no entrance examination to secondary school 3. expansion of secondary education
1972-1981	Raising heavy and chemical industries (steel, petrochemistry, shipbuilding, electrical machinery, etc.)	Ratio of light and heavy industries	1. raising vocational secondary school specialisation and expansion of vocational training schools 2.	1. expansion of vocational secondary schools 2. expansion of secondary education
1982-1996	Raising technology- and information-based industries	Expansion of third industry (auto, semiconductor, computer, communication machinery, etc.)	1. expansion of higher education 2. restructuring the number of student in science and engineering departments from 1991	1. increase in the number of higher education students and institutions 2. moving to a college-based university system

Source: Kwak, Young-woo, (1998), The Relation between Economic Growth and Educational Development in Korea - Focusing on Meta Analysis of Development Indicator, *교육재정경제연구*, [The Journal of Economics and Finance of Education], Vol.7, No.2, p. 283.

As Table 8.8 shows, the growth of education maintained the supply of the right kind of labour force in the times of the selected industrial developments. For example, during the first and the second five-year economic development periods (1961-1966, 1967-1971), the expansion of primary education supported the development of labour-intensive light industries. During the third and the fourth periods (1972-1976, 1977-1981), heavy industry was able to grow through the production of skilled and semi-skilled workers from the expansion of secondary education. The expansion of higher education from the 1980s produced highly skilled technicians for the growing industries such as computing, semiconductor, automobile manufactures and communications.

There are other analyses, which examined the relation between the quality of labour and economic development in Korea.⁷⁹ One points out that during the early period of economic development (1961-1979), a quantitative contribution from the expanded secondary education sector was possible, and during the later period (1980-1994), a qualitative contribution to industrial development was made by the expansion of tertiary education, which promoted the supply of labour and high technology.⁸⁰

Overall, most Korean scholars have agreed that the contribution of education to economic development, particularly the successful supply of skilled and semi-skilled workers to industries, was critical. However, scholars have also pointed out that the national education system was not providing an appropriate service for the changing conditions of economic activities.⁸¹ This was partly education policies under the military governments were manipulated to maintain the political legitimacy of these governments. Each new educational policy might improve the overall quality of education, but failed to serve changing social, economic and educational needs.⁸²

The new governments of the 1990s needed a new vision for national development; they initiated a new economic policy for the twenty-first century, and appropriate educational provision which could support the growing knowledge industry.

Thus the changes in the political priorities of the national development plan influenced the development of collaborative and interactive relationships between higher education (knowledge production) and the economy (the commercialisation of knowledge).

In the next section, this chapter will examine the changes in these relationships by looking at three higher education institutions.

CHANGES IN UNIVERSITIES

This section will examine how new education policies are shaping Korean universities since the introduction of the education reform in 1995. Three Korean universities will be analysed, to examine how the reform affected each of them.

Korean universities are experiencing national and international pressures. Nationally, they have had to cope with the rapidly changing government policies and the diversifying need for higher learning.⁸³ Internationally, the domestic higher education market has become open to international competition.⁸⁴ Foreign institutions are setting up international branches in Korea or offering distance education programmes through the internet.⁸⁵ As Korean universities are also trying to attract international students and academics, this competition has encouraged them to re-structure themselves as competitive institutions.

This chapter examines *Sungkyunkwan* University (SKKU), Seoul National University (SNU) and the *Pohang* University of Science and Technology (POSTECH).

Sungkyunkwan University and Seoul National University played different roles in a very hierarchical higher education system in the development of modern higher education in South Korea, but both of them have undergone intensive restructuring processes, with new visions for the twenty-first century.

Sungkyunkwan University was established in 1396. The only state higher education institution was closed by the Japanese colonial government. When the university was re-opened after the end of the Second World War, it failed to regain the status of a national institution. The university managed, however, to keep its valuable role in liberal arts studies, particularly in Confucian studies. Despite under-investment

and under-development for many decades, *Sungkyunkwan* is successfully transforming into a competitive university, with strong support from the Samsung Group since 1992.

Seoul National University has been the leading higher education institution in Korea since its re-naming and upgrading as a national university in 1946. The university has attracted the best-performing group of secondary school leavers, and produced social and political elites who have played key roles in the development of modern Korea. The university is now hoping to transform into a world-class research institution.

These universities will be analysed and compared, based on their own development plans, strategies and evaluation reports.

Before the analysis of structural changes in the *Sungkyunkwan* University and Seoul National University, this section will begin with the illustration of a particular kind of research-oriented university, the *Pohang* University of Science and Technology (POSTECH). The creation of the university in 1986 was unique, experimental, and pioneering, considering the poor educational environment of higher education during that time.

The *Pohang* University of Science and Technology

In the 1980s, Korean higher education expanded as political control of the scale of higher education was relaxed. With this expansion, an emphasis was put on the growth of science, engineering and advanced technology. Growing concern over the lack of advanced scientific knowledge and technology, and of scientists and engineers in Korean industry, led to support for investment in science and engineering departments in higher education. Nonetheless, the creation of POSTECH to support science and engineering education in the absence of a research-oriented university in Korea was a pioneering attempt.

The basic philosophy of the University was summarised as: ⁸⁶

Pohang University of Science and Technology (POSTECH) is to pursue in-depth theories and a wide range of applications in science and technology, crucially needed for the growth of the nation and human society in general. In addition, by attracting a small group of highly qualified students and providing them with an excellent education, POSTECH produces an outstanding workforce, meeting the highest international standards, equipped with both knowledge and intelligence. POSTECH aims to serve the society and mankind by transferring the research outcomes through the realisation of active co-operation with industry and research institutes.

Thus the university is pursuing elite education with an emphasis on science and technology. From the beginning, the university therefore altered the typical department structure by removing barriers among different disciplines to help students to study double or multiple topics. The university focused on research activities, working with local and national industries. Its relation with Pohang Steel (an internationally competitive steel company), which supported the creation and the development of the university, was a unique kind of cooperation found in Korea in the 1980s.

POSTECH admitted 249 new students from 1987, in nine departments: Mathematics, Physics, Chemistry, Material Science Engineering, Mechanical Engineering, Industrial Engineering, Electronics and Electrical Engineering and Chemical Engineering. The emphasis on cutting-edge research in basic sciences and engineering, developing close collaboration with prestigious universities world-wide, and the growth of a research centre for material science and engineering have been the top priorities of the university.

POSTECH was a unique case of the development of a research-oriented university for the most qualified students in Korea. Despite its short history, the

university was recognised in 1994 as the leading university by the University Accreditation Committee in Korea, and was selected by the Ministry of Education as an Outstanding University for Educational Reforms for nine years (1996-2004). *Asia Week* (a weekly magazine published in Hong Kong) ranked POSTECH as first among Asian specialised sciences and technology schools in 1998, and second in 1999. The success of the university made it a good example of a leading research institution specialising in science and engineering and having a special relation with the local industry in the following decade. Now the university has grown into a research community of 274 academics and 769 students in the academic year 2006-2007, as Table 8.9 shows.

Table 8.9 Departments

Undergraduate	10 Departments (4 Science & 6 Engineering) (Humanities & Social Sciences), Chemical Engineering, Chemistry, Computer Science & Engineering, Electronic & Electrical Engineering, Industrial & Management Engineering, Life Science, Material Science & Engineering, Mathematics, Mechanical Engineering, Physics
Graduate	5 Departments, 3 Divisions, 1 Graduate School, 2 Specialized Graduate School Mathematics, Physics, Chemistry, Chemical Engineering, Material Sciences & Engineering, Division of Molecular and Life Sciences, Division of Mechanical and Industrial Engineering, Division of Electrical and Computer Engineering, School of Environmental Science & Engineering, Graduate School for Information Technology, Graduate Institute of Ferrous Technology
Research Units	59(PAL, 4-SRC & 5-ERC, 8-IRC and 41Others)

Source: www.postech.ac.kr/new/e/about_POSTECH/facts_figure.php (2007).

In 1991, POSTECH started new aims for its research activities: better educational services through research, developing technology to support Pohang Steel, and creating science technology for national development, and in 1995 developed a major plan for University development. The new millennium vision is to continue to

maintain the primary role as a highly selective and research-oriented elite institution in the fields of science and engineering.

POSTECH now has new core objectives:⁸⁷

- To attract outstanding faculty and students,
- To develop a progressive curriculum,
- To focus on selected core research areas,
- To establish an efficient management system to support education and research,
- To expand its education and research infrastructure,
- To ensure the financial stability of the POSTECH development fund and its effective management

Among these new objectives, it is important to look at the university's research plan and how the university intends to raise funds for it. The university selects the best research areas and provides extra support for them. The detailed plans for focusing on selected core research areas include:⁸⁸

- Promote two to three core research areas through objective performance evaluation, and develop them into world-class calibre research centres,
- Interdisciplinary collaboration and research activities centred on research centres to be promoted,
- Research capabilities and research funds to be maximised by strengthening national projects and industrial cooperative researches,
- Active international cooperative researches with departments and world-renowned research centres to be promoted,
- Excellent research staff to be recruited and efficient research support system such as a Venture Business Incubation Centre to be established.

Unlike other Korean universities, POSTECH had encouraged the development of interdisciplinary study.⁸⁹ For example, the university encouraged the development of cooperative studies in materials, mechanics and electronics in research centres.

Fundraising is also an important task for this university, like any other. The university aims to attain the financial stability of the POSTECH development fund and its effective management:⁹⁰

- Financial independence to be attained by building up the university development fund and diversifying its sources;
- Active participation in the development of the Pohang Techno park, and the commercialization of technology to be promoted through the Venture Business Incubation Centre;
- Budget allocation based on strategic planning to be implemented;
- Evaluation and audit systems of departments to be intensified.

In many Korean universities, the follow-up inspection after the allocating of research funds has been loose. However, POSTECH stresses strategic planning and audit and evaluation.

Overall, POSTECH is a particular kind of university in the field of science and engineering in Korea. It is not a typical type of higher education institution. However, as other Korean universities are re-structuring themselves as research-oriented institutions, the case of POSTECH is valuable for understanding the changing direction of higher education in South Korea.

This section will next investigate the restructuring process of more conventional types of university, *Sungkyunkwan* University and Seoul National University, in order to understand the impact of the 5.31 Reform at the institutional level.

New Development Plans for the University

Sungkyunkwan University

The government's education reform of 1995 and the financial security given by the Samsung Group from 1996 activated the university's reform and boosted research activities even further, specifying the role of each department and school. The Samsung Group has been particularly influential in the implementation of new management skills. A new development plan, Vision 2010, was developed by the Vision 21 Committee of the University in 1998.⁹¹ Vision 2010 focused on four areas: faculty enhancement, innovation in education, the administrative system and the infrastructure of the university.⁹²

To enhance the faculty, the university increased the number of staff, improved the faculty vs. student ratio and the budget for the research, and evaluated the performance of the faculty to improve the quality of teaching and research.⁹³ However, the key plan was to introduce new academic evaluation systems in three areas: teaching, research, and other service activities, at the end of every academic year.⁹⁴ For teaching, curriculum management and student tutorials are evaluated, with student surveys for their classes.

As Table 8.10 shows, the scoring method for the evaluation of teaching is clearly specified. Research activities are the core of the academic evaluation system. For example, an extra hundred million *won* is granted to each faculty member produces six research results.⁹⁵ All research-related activities, such as attending conferences, writing papers for conferences and journals, and publishing reports and books, are acknowledged.⁹⁶ The evaluation results will be used for re-contracting, promotion and

allocating extra research funds for academics.⁹⁷ In addition, other services such as administrative work, chairing academic societies and government counselling are assessed. SKKU was determined to encourage research activities by increasing the university research fund to 100 billion *won* by 2010.⁹⁸

Table 8.10 Academic Evaluation System- teaching

	Area		Evaluation method-score
Curriculum management and development	Curriculum		36+number of class
	Course design		12+(number of class with course design) 0.5
	Lecture		60(survey result)-(number of cancelled classes) 2
	Teaching skill		5(course number)
Thesis and Student counselling	Completion of MA theses	Graduate schools	3(number of student MA awarded)
		Special graduate school	1(number of student certificate awarded)
	Completion of PhD theses		6(number of student PhD awarded)
	Student counselling		5(number of tutoring in a term)

Source: Sungkyunkwan University, (1998b), Vision 2010, Sungkyunkwan University Press: Seoul, p. 31.

The university also established model designed to improve the quality of educational services as shown in Table 8.11 on the next page.⁹⁹ One of the interesting changes in education was made in the curriculum. The key feature of the new curriculum was the ‘*Sam Poom*’ (three certifications) programme which focused on the ‘employability’ of the graduates.¹⁰⁰ The university has imposed three compulsory courses - information education (IT), global education (foreign languages) and liberal education (humanities) – and awards certifications accordingly.

**Table 8.11 The Education Reform Model for Quality Improvement
- Four Target Areas -**

Restructuring Development-oriented	Education system Flexibility	Curriculum Updated information	Degree system Effectiveness
Restructuring student numbers Core areas for budget allocation	Multi-prospective approach for undergraduate courses Research-oriented for postgraduate courses Meeting new educational needs for special graduate schools	Practical-oriented Information -based Internationalisation Human- centred	Student selection Student services

Source: Sungkyunkwan University, (1998), The Vision 2010, Sungkyunkwan University Press: Seoul, p. 57.

The First *Poom* (certification) is IT education. All students are required to complete IT courses and get an ‘*Info Poom*’ certification. The Second *Poom* is global education. The university runs courses in the English language and organises international exchange programmes for students and academics.¹⁰¹ Now students are required to complete 9 credits in English courses instead of 6. Students from the 1996 entry are also required to get a ‘*Global Poom*’. More English-speaking academics are employed, to improve the courses and also to aid students’ English learning experiences (classes taught with English language will be increased to 10 % in 2010).¹⁰² The third is humanities education. The university has developed programmes that encourage students to learn about moral values and social issues.¹⁰³ The university has selected reading lists of great philosophers and encouraged students to learn traditional values from the classics.¹⁰⁴ Students are also asked to learn about Korean culture, leadership and liberal knowledge in order to get the ‘*New-Scholar Poom*’ from their tutors. These three certifications (*Sam Poom*) are compulsory for an undergraduate student to be

qualified for a BA degree. The new curriculum for undergraduate students is aimed at producing employable, trained professionals for the changing economic market.

Vision 2010 had three development stages: the reform stage (1998-2000), the development stage (2001-2005) and the achievement stage (2006-2010).¹⁰⁵ After the first stage ended in 2000, the university carried out the first evaluation: *The Vision 2010: the results of the first stage and main tasks for the second stage*.¹⁰⁶ The university did relatively well, considering the influences of the economic crisis, on recruiting faculty, improving the faculty performance in research, increasing the research budget (Tables 8.12 and 8.13), and attracting students. For example, the enrolment of new students from the top 5 per cent of the university entrance examination results increased from 35.1% in 1997 to 50.3 % in 2000.¹⁰⁷ The university also received good responses from the public and other institutions. The Ministry of Education selected SKKU as a good reforming institution between 1996 and 1999. The rankings among national universities (12th in 1996 to 7th in 1999) and Asian universities (40th in 1998 to 28th in 1999) also improved.¹⁰⁸

Table 8.12 Research Activities of Faculty

Year	Target by 2000	1996	1997	1998	1999	2000
Research reports (number/faculty)	4	2.95	2.91	3.72	4.59	4.96

Source: Sungkyunkwan University, (2001), The Vision 2010 – the results of the first stage achievement of Vision 2010 and tasks for the second stage, Sungkyunkwan University Press: Seoul, p. 32.

Table 8.13 shows that the university encouraged each faculty member to produce four research results each year by the end of the first stage of Vision 2010 (2000). The achievement of the faculty was better than expected.

Table 8.13 Research Funds –2000

(amount: hundred thousand won)

	Internal fund	External fund						Total
		MOE	LGA	Foundation	Industry	Foreign	Ex	
Amount	870	31,685	950	808	4,333	13	3,904	42,563
Percentage	2.05	74.44	2.23	1.90	10.18	0.03	9.17	100

Source: Sungkyunkwan University, (2001), *The Vision 2010 – the results of the first stage achievement of Vision 2010 and tasks for the second stage*, Sungkyunkwan University Press: Seoul, p. 33.

The university completed the second stage, and launched Vision 2010 Plus (the version altered according to the result of the second review) for the final stage of the development plan in 2006.

Overall, the reform of *Sungkyunkwan* has been successful. Considering the long-term government investment in Seoul National University and the particular case of POSTECH, the achievement of SKKU in the last ten years is remarkable. Vision 2010 promoted a great deal of investment to increase the numbers of students in the Science and Engineering Departments and of faculty members. SKKU's introduction of the *Sam Poom* system also contributed to the improvement of the quality of education. The university's concern for the employability of its graduates means that it is serving market demands better than other universities.

The move towards the development of a research-oriented university and a large investment in science and engineering departments did not make SKKU a particular case, as most of the top quality universities have moved in the same direction. In fact, the same move could be an obstacle to the government's development of a diversified and specialised higher education system. Nonetheless, the case of SKKU shows that a typically under-performing university can be transformed into a competitive leading research university, which became a model for other higher education institutions.

The University of Seoul National

There has been an ongoing discussion about the transformation of the university into a graduate-centred university. This was reflected in the 1987 Long-term Development Plan, which led to the expansion of the number of students on post-graduate courses and special-graduate courses. The creation of the International Graduate School, which covers International Law, International Organisation, International Management and International Relations, is a good example of the promotion of new courses for graduate students.

When the period of the 1987 development plan ended in 2001, the university formed a panel on educational excellence with the aid of McKinsey & Co. The panel was asked to give advice to SNU on how to transform SNU into a world-class research institution. The panel produced *The Report, Elevating Seoul National University to a World-class Research University: Findings and Recommendations from the Panel on Educational Excellence*, a vision to SNU in December 2001. The report pointed out three weak aspects of SNU and recommended three goals for its successful transformation into a research university; it suggested that the university needed to improve in three areas, as below:¹⁰⁹

- Looking more broadly at the hiring of faculty and at how to improve performance,
- Increasing the diversity and stability of funding resources,
- Altering the governing structure to create clear accountability and better decision-making processes.

The report also suggested three goals and eleven initiatives for a successful transformation into a research university, as shown below:¹¹⁰

Goal 1 Developing an appropriate governing structure

Initiative 1: Create broad trustees with responsibility for hiring the president, negotiating with the government on SNU's behalf, and holding SNU accountable for performance.

Initiative 2: Restructure and strengthen the academic administration by increasing the terms of key positions, changing appointment procedures, and redefining the roles of key leadership positions.

Initiative 3: Create a mechanism for faculty to provide high-quality administration, to execute their institutional responsibilities and to be held accountable for performance.

Goal 2 Commitment to excellence based on relevant reviews

Initiative 4: Institute a system of regular programme reviews, with input from external academic experts, and establish a mechanism to allow action to be taken on the outcomes.

Initiative 5: Institute a system of rigorous faculty review, for both junior and tenured faculty.

Initiative 6: Develop meaningful rewards that recognise distinctive programmes and individuals.

Initiative 7: Grant SNU the authority and responsibility for hiring and developing administrative staff.

Initiative 8: Increase the rigor and relevance of undergraduate education.

Initiative 9: Actively promote the internationalisation of SNU.

Goal 3 Raising and distributing resources to support excellence

Initiative 10: The MOE and SNU should agree on an approach and implement a funding mechanism (including the generation of secondary sources of funds) to jump start a high-priority programme.

Initiative 11: Improve the level of fundraising to develop a self-perpetuating endowment that can supplement other sources of funding, (i.e. launch a capital campaign to fund it).

The Report was influenced the next plan for the university's development. As SNU was already aware of these problems, the university accepted the advice from the Report and directed a new master plan for development. Now the university has launched a new long-term development plan for 2007-2025: the Seoul National University -SNU 2025. The short-term aim is to become an 'Education Hub in Asia' by 2015, in order to be a world-leading research university by 2025.

The changes in the Seoul National University have a particular impact on the direction of other universities, as the government has chosen the university as a model for others. The university has benefited from the large amount of government's investment and the selection of top-quality students. At the same time, the cases of *Sungkyunkwan* and the *Pohang* University of Science and Technology show that Seoul National University's prestige may be challenged in the future, as the environment surrounding Korean universities is going through substantial changes, and they face increasing international competition.

The cases of SKKU and SNU have been selected because of their unique historical experiences, as they were examined in earlier chapters and because of their different roles and position in South Korea. They are making efforts to relate to all the individual, social, national and international changes. In spite of the differences, the three universities have shown that Korean universities have been directed towards the idea of a research university since the 1995 Education Reform. These universities are developing practical and professional education that increases the employability of graduates in the rapidly changing labour market; are pursuing their development as world-class research centres; and are trying to break down their bureaucratic

administrative systems and introduce efficient and flexible administration, to support teaching and research activities effectively.

Sungkyunkwan has been evaluated as the most successful institution by the Ministry of Education, the public and other academics. It appears that the Samsung Group's support for SKKU – that is, financial support and the business management skills - in implementing innovative management system was critical. SKKU is open to society, promotes its reform plans to improve its reputation and attracts good faculty and students, while the Seoul National University already enjoyed a privileged position in South Korea in previous decades and hence has tried to improve its international recognition. SNU had great difficulties in breaking down its rigid and bureaucratic system to improve the efficiency of its institutional management as a leading national institution. The illustration of the distinctive case of the *Pohang* University of Science and Technology was to show how the Korean university could achieve high quality research activities and create a science park around the university.

It has been hard for Korean universities to improve the quality of education and research, and compete with international institutions at the speed that the government expected. *Sungkyunkwan* and the Seoul National, however, were cases which took on these changes successfully. Despite the improvement, the overall competitiveness of Korean universities is still far behind that of world-class institutions. For example, only the Seoul National ranked as only 51st among the world's top 100 universities in 2007. Therefore Korean universities are expected to continue to improve their institutions.

CONCLUSION

This chapter has examined the changes in Korean higher education institutions and in higher education's relationships with the state and the economy from the 1990s.

In Chapter Two, a Net Model was outlined. The key characteristics of the Net model are:

- i. What counts as “the most important knowledge” depends on the potential economic value that new knowledge can further generate. The choice of knowledge and new knowledge production in higher education are significantly influenced by its possible commercial value in terms of its applicability to the market.
- ii. Higher education maintains the role of elite formation. However, the old notion of the elite is no longer suitable for a highly specialised and diversified labour market. Higher education in the Net Model is responsible for the production of wider ranges of educated professions and new knowledge.
- iii. The state considers higher education in relation with the national and international economy. The state develops controlling mechanisms for efficiency, accountability and quality of higher education and to lead higher education institutions to meet changing economic conditions.
- iv. The political analysis of national economic conditions influences the direction of higher education. Entrepreneurial principles are applied to the development of educational programmes, research activities and the management of institutions.

This model will be used for the purpose of making a summary and as an interpretative tool, emphasising the four themes of the model: knowledge in higher education, the roles of higher education, the state and the economy.

Knowledge in higher education

The value of cutting-edge knowledge and specialised knowledge began to be stressed in higher education. Since the 5.31 Education Reform, Korean universities have been encouraged to produce new knowledge which can be applied to commerce and business. For example, *Sungkyunkwan* and the Seoul National University promoted research activities by increasing their investment in sciences and engineering departments and collaborative research opportunities with industry.

The roles of higher education

The government's promotion of institutional differentiation and specialisation in education and research influenced the definition of appropriate roles of higher education. Firstly, institutions began to produce broad ranges of educated professionals as the wider access to higher education and the specialisation of the labour market increased the number of market-oriented courses in universities. Secondly, universities generated an increasing amount of research results, taking advantage of additional financial aid programmes from the government, like the Brain Korea 21.

The state

The government's 1995 Education Reform policies reshaped higher education. The progress in Korean politics after the end of military governments raised political attention to the quality of education. Therefore although the state still plays a leading role in directing higher education, it has implemented new policies through democratic processes and supporting systems, such as a new evaluation system for academics and institutions, and financial support programmes for R&D, which are based on competition. The state's role in Korean higher education is still important. Nevertheless, the changes in the last ten years indicate that this role has been driven by a new political

interpretation of the changing economic needs, the changes in the international market in particular, rather than by concerns about political control.

The economy

The increasing economic globalisation and the development of knowledge industry pressured the government to vitalise research activities. The Asian financial crisis in 1997 accelerated the transformation of leading universities into research-oriented institutions. The stress on R&D and on the commercialisation of cutting-edge knowledge encouraged universities to develop collaborative relationships with businesses and commerce. The advancement of IT and communication technology boosted the formation of various kinds of collaboration in and outside institutions.

Overall, the application of the Net Model was useful to illustrate the complexity and the rapidity of the changing forms of higher education during the last fifteen years in South Korea. However, it is getting hard to project the future shapes of higher education, as political issues at the global level have already begun to change, and to affect the direction of higher education.

In general, during the last twenty years the political discourse of higher education both in England and South Korea has been affected by the global economic competition, and institutions have been geared up to meet newly created demands. It is expected that each institution will keep competing with each other to attract the best academics, students and research funds. However, as changes in international markets appear and the ability of each institution varies signs of changes in higher education institutions have begun to show. Nevertheless, these changes are not necessarily future indicators.

ENDNOTES FOR CHAPTER EIGHT

¹ The proposal was submitted to the Cabinet Council meeting in July 1993. The first committee (from February 1994 to February 1996) consisted of 26 members and was chaired by Lee Sukhee. The committee reported the first and the second proposals to the President. Kim Chongsu led the second committee from April 1996 to February 1998 with 44 new members. The committee reported the third and fourth proposals and was responsible for implementing the educational reform policies into practices. The Presidential Commission on Education Reform, (1998), *한국교육 백서 1994-1998*, [The White Paper on Korean Education Reform 1994-1998], Republic of Korea: Seoul, p. 65.

² These three key aims were maintained from 1994 to 1998. The four proposals were carefully planned and implemented according to these aims. The Presidential Commission on Education Reform, (1998), *ibid.*, p. 70.

³ The Presidential Commission on Education Reform, (1998), *ibid.*, pp. 76-77.

⁴ Kim, Sungjae, (1999), 'Kookmin's Government': The Evaluation and the Task of Education Reform of the First Year, *평화논총*, [Peace Forum], Vol.3, No.1, p. 166.

⁵ Hu, Hyoungh, (1997), A Diagnose on Higher Education Reform, *교육학연구*, [The Journal of Educational Research], Vol.35, No.2, pp.51-52.

⁶ Hu, Hyoungh, (1997), *ibid.*, pp. 58-61.

⁷ *Ibid.*, p. 55.

⁸ The number of students and the size of each department had been politically decided. This was a powerful controlling device for the government, as universities largely depended on student tuition fees. Song, Kichang, (2000), The Issues and Improvement Direction of University Aid Programmes, *교육재정경제연구*, [The Journal of Economics and Finance of Education], Vol.9, No.2, p. 5.

⁹ Hu, Hyoungh, (1997), *op. cit.*, pp. 58 and 61.

¹⁰ Song, Kichang, (2000), The Issues and Improvement Direction of University Aid Programmes, *교육재정경제연구*, [The Journal of Economics and Finance of Education], Vol.9 No.2, p. 5.

¹¹ Song, Ki-chang, (2000), *ibid.*, p. 7.

¹² The gap between the top universities and others in Korea is great and has been an obstacle to the development of higher education. Yoon, chulkyoung, (1995), A Critical analysis of Policy for 'Sekewha'(globalisation) and Education Reform, *한국교육연구*, [Korean Educational Research], Vol.2, No.2, p. 21.

¹³ Song, Kichang, (2000), *op. cit.*, pp. 5-7.

¹⁴ The establishment of the Science Foundation in 1978 enabled to support programme for university research; however, it was interrupted by the higher education expansion policy from 1981. It was in 1986 that the Ministry of Education began to support university research with the establishment of the Korean Academic Promotion Organization. From 1986 to 1989, financial supports from the Science Foundation and Korean Academic Promotion Organization increased. Therefore, various systems for university supports were developed and activated from 1990 to 1995. Min, Chulku *et al.*, (1997), *대학연구 가능성 조성을 위한 정책모색*, [In Search of Policy tools for University Research Capability Building], Science and Technology Policy Institute: Seoul, p. 37.

¹⁵ The Presidential Committee on Education Reform, (1998), *op. cit.*, p. 72.

¹⁶ Ko, Young, (1998), The Basis of Higher Education Policy in the People's Government, *대학교육*, [University Education], No.6, pp. 24-25.

¹⁷ KEDI, (1999), *지식 기반 사회에서 한국교육정책의 방향과 과제*, [The Direction and the Task of Korean Educational Policies in a Knowledge-based Society], KEDI Press: Seoul, p. 32.

¹⁸ KEDI, (1999), *ibid.*, p. 57.

¹⁹ Lee, Jangjae *et al.*, (1997), *The Future of University Research in Korea- Focusing on Organised Research Units (ORUs)*, Institute of Science and Technology Policy: Seoul, p. 4.

²⁰ Min, Chulku *et al.*, (1997), *ibid.*, p. 59.

²¹ Science and Technology Statistics, www.most.go.kr

²² Min, Chulku *et al.*, (1997), *op. cit.*, p. 41.

²³ Lee, Jangjae *et al.*, (1997), *op. cit.*, p. 4.

²⁴ Kim, Sungjae, (1999), 'Kookmin's Government': The Evaluation and the Task of Education Reform of the First Year, *평화 논총*, [Peace Forum], Vol.3, No.1, p. 166.

²⁵ Park, Bukwon, (2000), The Expected Failure: Restructuring Seoul National University by the Brain Korea 21, *한국 교육 연구*, [Korean Educational Research], Vol.6, No.1, p. 26.

²⁶ The Department of Education initiated a budget of 2.5000 million *won* for the plan. The financial support will be secured by 10,000million *won* from the government account, 2,000million *won* from the Ministry of Education and 10million *dollar* from the World Bank. Park, Bu-kwon, (2000), *ibid.*, pp. 28-29.

²⁷ The budget plan failed to get financial aid from the World Bank, so the five-year plan has prolonged to seven years and investment was restricted to research universities in Seoul. Park, Bukwon, (2000), *ibid.*, pp. 29-30.

²⁸ Park, Bukwon, (2000), *ibid.*, p. 31.

²⁹ Lee, Jangjae *et al.*, (1997), *ibid.*, p. 107.

³⁰ Ministry of Education, (2006), *고등교육정책 바로 알기*, [Understanding Higher Education Policy], MOE: Seoul, p. 20.

³¹ Ministry of Education, (2006), *ibid.*, p. 22.

³² Shin, Hyunsuk, (2000), *한국의 교육 개혁 정책*, [Educational Reform Policies in Korea], Hajik Publishing Co.: Seoul, p. 121.

³³ Yoo, Sangduk, (1994), Educational Reform of Kim Young-sam Government: its Direction and Problem, *한국 교육 연구*, [Journal of Korean Educational Research], Vol.1, No.1, p. 47.

³⁴ Lee, Kyuwhan, (1994), Strengthening of the National Competitive Power and Educational Reform, *한국 교육 연구*, [Journal of Korean Educational Research], Vol.1, p. 15.

³⁵ Kim Youngsam presented “globalisation” as his primary governing principle in 1994, after returning from the Second APEC Conference. The term ‘globalisation’ was understood in Korea: 1) as a historical phenomenon of the world and 2) as a strategy to respond to this new world phenomenon. An, Kisung, *et al.*, (1998), *한국 교육 개혁의 정책/학*, [The politics of Korean Educational Reform], Hakji, Publishing Co.: Seoul, p. 173.

³⁶ *Ibid.*

³⁷ Park, Bukwon, (2000), *op. cit.*, p. 24.

³⁸ At the Independence Ceremony in August, 1998, President Kim presented the vision of the ‘creation of knowledge-based nation’. Since the Department of Finance and Economy, the Department of Industry and Resources and the Department of Information and Communication led the policy development and implementation. Kwon, Kihyun, (2000), A Logic and Strategy of Establishing Knowledge-based Government, *국가 전략*, [National Strategy], Vol. 6, No.2, pp. 24-26.

³⁹ Kim, Inhoe, (1997), Is it a reform of a democratic government or by a military government? *대학 교육*, [Higher Education], No.4, p. 95.

⁴⁰ No, Sangwoo, (1998), The Limits and the Problem of the Ideology of Educational Reform of Kim Young-sam Government, *한국 교육 연구*, [The Journal of Education Research], Vol. 36, No.1, pp. 60-61.

⁴¹ Yoo, Sangduk, (1994), op. cit., p. 51.

⁴² Ibid., pp. 12-13 and 53.

⁴³ The total education budget decreased comparatively; however, the government promised the public that they were increasing the total budget of education by up to 5 per cent of GNP. Lee, Kyuwhan, (1994), op. cit., p. 21.

⁴⁴ Chun, Youngpyoung, (1998), *김영삼 정부의 교육개혁 평가: 현 정부의 방향과 문제*, [Evaluation of the Education Reform of Kim Youngsam's Government: its Direction and the Problem of the Current Government], pp. 56-57.

⁴⁵ During the presidential election campaign, Kim Daechung pledged the promotion of autonomy and specialisation of each higher education institution. Therefore, the government paid attention to the improvement of the wider participation in educational policy development. However, in 1998, the government focused on active discussions about ways of restructuring higher education to find ways of overcoming the economic crisis and the new roles for society. Shin, Hyunsuk, (2000), op. cit., pp. 274 and 276-277.

⁴⁶ An education policy based on neo-liberal principles was introduced by the 5.31 Education reform. The previous government stressed mostly 'globalisation' and a 'neo-liberal ideology' but the new government emphasised a 'knowledge-based society' more than others. Chung, Sungjin, (1998), The Problem of Educational Policy of Neo-liberalism, in *Higher Education*, No.3, p. 8. see also Chun, Youngpyoung, (1998), *ibid.*, pp. 60-61.

⁴⁷ The combination of the democratic development of education and a market-oriented policy management has been developed as a basis of the government. Kim, Sungjae, (1999), *Kookmin's Government: The Evaluation and the Task of Education Reform of the First Year*, *평화 논총*, [Peace Forum], Vol.3, No.1, p. 169.

⁴⁸ This education reform aims to release students from the burdens of narrow study focusing on university entrance examinations. It also encourages a creative learning process in order to deliver creative workforces for the 21st century based on information, culture and knowledge. Ibid.

⁴⁹ The attitude of the Kim Daechung government was different from that of the previous government. Discussions on "participation" and "implementation" were more emphasized than its ideology. Park, Bukwon, (2000), State, Market and Civilian Organization, *한국 교육 연구*, [Korean Educational Research], Vol.6, No.1, p25.

⁵⁰ Kim, Sungjae, (1999), op. cit., p. 173.

⁵¹The educational administration was bureaucratic, and the reform policies were one-way and uniform. This damaged the original intention of the reform. Most of the teachers and parents were negative about the success of the reform. In fact, it failed to bring any practical changes to schools. Kim, Sungjae, (1999), *ibid.*, p. 167.

⁵² Park, Bukwon, (2000), *op. cit.*, p. 26.

⁵³ This was a blueprint for primary and secondary education, and suggested practical strategies for the improvement of schools. Shin, Hyunsuk, (2000), *op. cit.*, p. 185.

⁵⁴ Shin, Hyunsuk, (2000), *ibid.*, p. 204.

⁵⁵ The government also reduced the difficulty of the entrance examination for higher education and allowed students to make multiple applications in order to ease the over-competitive examination system. Park, Bukwon, (2000), *op. cit.*, pp. 26-27.

⁵⁶ Park, Bukwon, (2000), *ibid.*, p. 27.

⁵⁷ Son, Chunjong, (1998), A Study of the Restructuring Strategy of the University in *한국 고등 교육 연구*, [Korean Journal of higher Education], Vol.10, No.1, p. 47.

⁵⁸ Ministry of Education, (2006), *고등교육정책 바로 알기*, [Understanding Higher Education Policy], MOE: Seoul, pp. 23-25.

⁵⁹ Until the 1990s, annual economic growth was above 6 per cent. Lee, Sun, (1999), Improvement of the Constitution of Economy and Industrial Restructuring, *평화 논총*, [Peace Forum], Vol. 3. No.1, Kim Daechung Peace Foundation for the Asia-Pacific Region, p. 129.

⁶⁰ The economic crisis hit the nation at the end of 1997. About 14 months later, on February 1999, the unemployment rate reached 8.7 per cent. Kim sin-il, (2000), A Prospect on Education for the new Era, *한국 교육연구*, [Korean Educational Research], Vol.6. No.1, p. 4.

⁶¹ Lee, Sun, (1999), *op. cit.*, p. 130.

⁶² The Korean government understood that supporting *Jaebol* could minimise costs and maximise its national competitive power in the world market. Therefore, *Jaebol* were protected and supported to expand their business. However, this was accompanied by unequal opportunities, unequal distribution, and also damaged market principles. For example, small and medium-sized businesses found it difficult to compete against the giant companies which held special relations (information, protective regulation and financial supports) with the government. Kim. Kitae *et al.*, (1993), *op. cit.*, p. 246.

⁶³ *Jaebol* played a leading role in the development of the national economy. However, this achievement was supported by the government's protection policy. Kim. Kitae *et al.*, (1993), *ibid.*, p. 224.

⁶⁴The relationship was a particular combination of *Jaebol's* interest in profit making and the government's interest in cost-effective ways of using and mobilising the limited capital. Park, Woongsu and Lee, Kyoungtae, (1999), The task and Policy of Korean Industry, in Ahn, Sukkyo, (ed.) *21세기 한국 경제의 새 목적*, [Towards a New Aim for the Korean Economy in the 21st century], Seoul, p. 203.

⁶⁵ Manufacturing industry, that had led the economic development, began to decrease in its production and employment from the late 1980s. Lee, Kyungtae, (ed), (1998), *21세기 한국 경제: 미래 산업 비전*, [The Korean Economy in the 21st Century A Vision for the Korean future Industry], Life & Dream: Seoul, p. 29.

⁶⁶ Lee, Kyungtae, (ed.), (1998), *ibid.*, p. 33.

⁶⁷ KEDI, (1996), *한국 교육 비전: 세기의 대 전환*, [Korean Education Vision 2020-Mega Trends in Millennial Transformation and its Implications-], KEDI: Seoul, p. 91.

⁶⁸ Park, Woongsu and Lee, Kyoungtae, (1999), *ibid.*, p. 204.

⁶⁹ Lee Sun suggests two reasons for the urgency in the crisis of the Korean economy in 1997. The first reason is the changes in the international economy that increase the pressure on the Korean economy to open up its market to the world. The second comes from the end of the rapid economic development period in Korea. Therefore the Korean economy needed go through structural changes in order to achieve further economic development. Lee, Sun, (1999), *op. cit.*, p. 130.

⁷⁰ *Ibid.*

⁷¹ Lee, Sun, (1999), *ibid.*, p. 131.

⁷² *Ibid.*, p. 130.

⁷³ KEDI, (1998), *21세기 고등교육의 변화와 전망*, [The Changes and Prospects of 21st century Higher Education], KEDI: Seoul, p. 47.

⁷⁴ From the 1980s, efforts were made to develop advanced technology and knowledge industries and to reduce the time gap between new knowledge development and the commercialisation of the knowledge. However, Korea has still been dependent on importing advanced knowledge from the United State of America and Japan, with the exception of some industries, such as the semiconductor and computer industries. KEDI, (1996), *Korean Education Vision 2020- Mega Trends in Millennial Transformation and its Implications*, KEDI: Seoul, p. 98.

⁷⁵ KEDI, (1996), *ibid.*, p. 111.

⁷⁶ *Ibid.*

⁷⁷ Kwak, Youngwoo, (1998), The Relation between Economic Growth and Educational Development in Korea - Focusing on Meta Analysis of Development Indicator, *교육 재정 경제 연구*, [The Journal of Economics and Finance of Education], Vol.7, No.2, pp. 283-284.

⁷⁸ Korea was able to be in the leading position in national economic development among Asian countries by promoting labour intensive and export-oriented industries supported by the healthy supply of educated manpower. Lee, Donhee, (1998), *국가 위기 극복과 교육 경쟁력 향상을 위한 교육 전략*, [Educational Strategy for the National Crisis and the Provision for raising Educational competitive Power], KEDI: Seoul, p. 3.

⁷⁹ Kwak, Youngwoo, (1998), *ibid.*, pp. 284-285.

⁸⁰ *Ibid.*, pp. 287-288.

⁸¹ KEDI, (1998), *1998 교육 정책을 위한 1 차 토론회*, [The First KEDI discussion on Educational Policies of 1998], KEDI: Seoul, p. 11.

⁸² Until now educational reforms in Korea have focused on solving current problems of the existing education system; however, the new policies have incurred other problems. Lee, Donhee, (1998), *ibid.*, pp. 4-5.

⁸³ Although, the main principles of the 5,31 Education Reform were maintained, the “Educational Development Five Year Plan” was suggested in order to show the blue print of Korean education for the early 21st century. This plan suggested detailed development, and new financial and managerial schemes. Shin, Hyunsuk, (2000), *op. cit.*, p. 200.

⁸⁴ As Korean society becomes open to the world, Korean higher education institutions are expected to compete with the worlds’ leading institutions. KEDI, (1998), *한국 교육 비전 2020: 교육 전략*, [The Vision of Korean Education 2020: Educational Strategy], p. 66.

⁸⁵ Kim Sinil, (2000), *op. cit.*, p. 4.

⁸⁶ Pohang University of Science and Technology, (1997), *포항 공과대학 10 년사*, [A Ten-year History of Pohang University of Science and Technology], POSTECH: Pohang, see also www.postech.ac.kr.

⁸⁷ www.postech.ac.kr/new/e/about_POSTECH/vision.php, 2007.

⁸⁸ www.postech.ac.kr.

⁸⁹ Rhyu, Jisung, *et al.*, (2006), *University Innovation and Competitive Power*, Samsung Economic Research Institute (SERI): Seoul, p. 36.

⁹⁰ www.postech.ac.kr.

⁹¹ As the university celebrated its 600th anniversary, it established a new medical school in 1996 and proposed a new vision, 'harmony of tradition and advancement, and a world-class research centre' and a new master plan for university development, Vision 2010 in 1997. *Sungkyunkwan University* (Vision 2010 Committee), (1998), *Vision 2010: the Final Report*, Sungkyunkwan University Press: Seoul, p. 1.

⁹² The university first identified four main problems of *Sungkyunkwan*. Then the development committee established a long-term plan that enabled it to meet the changing social and economic needs. The university also specified targets according to three development stages that move it towards being an international competitive institution in 2010. *Sungkyunkwan University*, (1998), *ibid.*, pp. 2-3.

⁹³ The number of faculty in *Sungkyunkwan* was lower than in other institutions. *Sungkyunkwan University*, (1998), *ibid.*, p. 15.

⁹⁴ *Sungkyunkwan University*, (1998), *ibid.*, p. 26.

⁹⁵ *Ibid.*, p. 33.

⁹⁶ *Ibid.*, p. 34.

⁹⁷ *Ibid.*, p. 42.

⁹⁸ The university research fund was 28 million *won* in 1997. SKKU planned to increase it to 100 billion in 2000, to 400 billion *won* in 2005 and 1000 billion *won* in 2010. *Sungkyunkwan University*, (1998), *ibid.*, p. 53.

⁹⁹ *Ibid.*, p. 57.

¹⁰⁰ *Ibid.*, p. 91.

¹⁰¹ *Ibid.*, p. 95.

¹⁰² *Ibid.*, p. 96.

¹⁰³ *Ibid.*, p. 101.

¹⁰⁴ *Ibid.*, pp. 102-103.

¹⁰⁵ *Ibid.*, p. 7.

¹⁰⁶ *Sungkyunkwan University*, (2001), *The Vision 2010: the result of the first stage achievement of vision 2010 and tasks for the second stage*, Sungkyunkwan University Press: Seoul, p. 50

¹⁰⁷ *Ibid.*

¹⁰⁸ *Sungkyunkwan University*, (2001), *ibid.*, p. 26.

¹⁰⁹ Seoul National University, (2001), *Elevating Seoul National University as a World-class Research University*, SNU Press: Seoul, p. 21.

¹¹⁰ Ibid., pp. 39-40.

CHAPTER NINE

CONCLUSIONS

The purpose of this concluding chapter is to review the main arguments of the thesis and the theoretical implications of these arguments. After recapturing the main arguments, the chapter will discuss their theoretical perspectives and their implications of the arguments.

The chapter begins by revisiting the argument of the thesis: in England and South Korea, higher education and its relationships with the state and the economy have altered under the impact of fresh political interpretations of the significance of economic changes over the last hundred years. These transformations are most visible in particular time periods (1880-1900, 1960-1990 and the 1990s), and have affected the valuations of ‘good knowledge’ and influenced the areas and methods of research activities in higher education.

In order to review the argument, there are some advantages in taking a fresh look at the key aspects of the thesis – the time periods of the analysis, its theoretical perspectives and its models of the relationships between higher education, the state and the economy.

SELECTION OF TIME PERIODS IN THE STUDY

At the beginning of the research, three time periods were selected for the thesis: 1880-1900, 1960-1990 and the 1990s; in these periods, substantial changes in higher education were experienced, such as the creation of new institutions, the growth of existing institutions and the shifting emphasis on particular kinds of education.

For example, towards the end of the nineteenth century in England, the Victoria University of Manchester (1880), Liverpool (1883) and Leeds (1887) was created, and as well as more colleges in the following decade in other industrial cities, to improve science and technology education which had lagged behind other European countries like Germany and Switzerland. These changes occurred, despite the resistance to professional education by leading figures like Newman.

In Korea, *TongByun* School (1883), *WonSan* School (1883), and *EukYoung KongWon* (1886) were examples of the creation of new institutions at the end of the nineteenth century. In these institutions, instead of Confucian knowledge, English, Mathematics, History, Law and Geography were taught. However, the indigenous effort to modify education failed, as *Sungkyunkwan* was closed by the Japanese colonial government in 1910.

Thus there were examples of changes in traditional higher education in both countries at the end of the nineteenth century.

However, it was in the 1960s that really notable changes were made in their higher education systems. In England in the 1960s, for example, the government supported the development of a national higher education system, stressing science and technology education in universities. After the 1963 Robbins Report, two institutes of science and technology were attached to Manchester University and Cardiff University, and 11 new universities and 30 polytechnics were established in England and Wales. In South Korea, the government initiated National Development Plans in 1961 and shaped a new, modern higher education system. In the following three decades, the quantitative growth of higher education was significant. One of the interesting aspects of this growth in both countries in this period was that the development of science and technology education was mainly led by technical (non-

elite) colleges. There was a clear boundary between academic elite universities and vocational technical colleges in higher education in both countries.

In the 1990s, however, the distinction between academic and vocational studies diminished, and both governments emphasised science education and research. In England, the government abolished the binary system and developed new financing and evaluation systems. In Korea, the government focused on the improvement of the quality of higher education and research activities. The political emphasis of both governments focused on the production of the latest information and knowledge which could be used intensively for commercial purposes.

In addition, in the three chosen periods, both England and South Korea experienced significant social and economic changes which influenced the development of higher education.

For example, in the nineteenth century, industrial development and the growth of military and naval forces supported European imperial expansion, with increased interaction between Europe and Asia.¹ The British domination of the control of the flow of trade and resources in the world economy, in the nineteenth century in particular, generated national wealth, the growth of industrial cities and a new entrepreneurial class. This raised questions about the appropriateness of university education, as the existing university education, especially at Oxford and Cambridge, was not appropriate to support industrial development along with growing international trade. The growth of industrial cities and the pressure from the increasing competition in the international market helped to support the creation of new “red-brick” universities in England.

Korea experienced much more unstable social and political conditions than England during the second half of the nineteenth century. The Japanese invasions of

the Korean peninsula grew stronger. At the very beginning of the modernisation movement, the Korean state failed to protect national security; this failure indirectly caused the collapse of the education tradition and the closure of *Sungkyunkwan*. Overall, the social and economic changes in Korea at the turn of the nineteenth century were more intense and uncertain than in England.

After the Second World War, both governments had similar tasks: to provide national security, education, health and economic development for their people. As the Korean government had depended on knowledge and experience from the United States and Japan for national development, higher education policies also followed these countries' experiences in key areas like access to higher education and the quality and accountability of higher education.

In the 1960s, the growth of large-scale manufacturing industries increased competition for cheaper resources and labour. Mass-manufacturing industries such as steel, automobiles and food processing depend on standardised assembly lines and a large number of blue-collar workers.² Both governments supported technical colleges (in the 1960s in England and in the 1980s in South Korea) to supply labour which had the right skills for such manufacturing industries. Given the low quality of education in South Korea during the 1960s and the 1970s, the quantitative growth of secondary schools and technical colleges provided cheap semi-skilled and skilled labour for industrial development.

The economic changes in the 1990s were also substantial, and intense in many ways. The collapse of the communist bloc and the advances in IT technology and communication technology accelerated the growth of the global market. The growing share of Japan and other Asian countries in world trade alarmed Western countries like Britain and the United States.³ In Britain, the government reduced public

spending on higher education and shifted from an emphasis on social welfare policy to a concern for economic development.⁴ In Korea, the government developed extra funding programmes to improve the quality of research in science and engineering. Thus the move of the world economy from price competition based on mass manufacturing to competition in producing value-added goods and services based on the latest technology shifted the focus to R&D, and science and technology education in universities. In both countries, the economic role of higher education as a source for technological innovation was stressed.

Overall, then, the three time periods selected for the thesis were strikingly different, but all implied the possibility for the development of new shapes of higher education.

REFLECTION ON PERSPECTIVES

The thesis initially examined convergence theories and developmental state theories, in order to develop the theoretical frame of this comparative study in Chapter Two.

Firstly, the thesis looked at convergence theories, as the phenomena of converging political discourses, which have affected the key business of higher education in the two countries during the last twenty years, were significant. The thesis paid attention to external pressures on national higher education provision. Convergence theories argue that:

- In advanced industrial societies, the dependency on education has increased with the progress of technology;
- The international influences on the direction of institutions at national and regional level are growing, due to the rise of international bodies; and

- These external pressures lead the state to take political decisions which often lead to similar policy developments in different countries.

Growing economic globalisation, new regulations from world organisations like the WTO and the World Bank, and the increasing international flow of advanced knowledge and labour have had a huge impact on business and commerce at the national level. Under these pressures, more and more governments have asked higher education to take economic responsibilities seriously. This trend has affected research activities in universities significantly, and promoted international exchange in research activities, education programmes, academics and students in both England and South Korea. The state – within these contexts - therefore has acted as a force for making the higher education systems in these two countries converge, in the last ten years in particular.

In view of the growing role of the state in the development of education and the national economy, the thesis also examined developmental state theories, which emphasise the critical role of the state in the shaping of (higher) education at the centre of national development in many East Asian countries. The key ideas of the developmental state theories which were discussed in Chapter Two are:

- The state has developed a unique style of development strategy, a politico-economic strategy for national development, and
- The exercise of state power to achieve a fundamental transformation of the economic order is of great importance.

As an example of developmental state, the Korean government initiated and led the Five-year National Economic Development Plans from 1962, which also influenced the growth of the education system in the following three decades. The

implementation of centralised plans in line with the economic protection policies supported exceptional national development during 1962-1992.

Although the political motivation of the military government also played a large part in the state-controlled planning and implementing process during this period, the developmental state strategy contributed to the fast economic development of South Korea. The successes of South Korea and other East Asian countries attracted international attention to the powerful roles of the state in economic growth, as examined by the 1992 OECD report.⁵

As the Korean government has tried to compete with Western countries, during the last ten years in particular, it has adopted Western policies, like the British and American-led neo-liberal policies, which have contributed to the converging phenomena in higher education policies in England and South Korea in recent years.

Thus both convergence theories and developmental state theories have permitted a perspective on the external pressures on higher education institutions in England and South Korea, and on how each government reacted to the pressure and developed similar higher education policies to re-direct higher education.

Interestingly, however, universities have maintained and strengthened their critical roles in education and research, despite the growing external influences. Therefore, the thesis turned its attention to an internal aspect of higher education, the role of knowledge production in particular, and proposed three models of the relationships between higher education, the state and the economy in order to examine how each part influenced others to shape the current forms of higher education. In the next section, the three models will be reviewed.

MODELS OF RELATIONSHIPS BETWEEN HIGHER EDUCATION, THE STATE AND THE ECONOMY

Each model specifies a particular form of the relationships between higher education, the state and the economy, as shown again in Table 9.1.

Table 9.1 Models of Relationships between Higher Education, the State and the Economy

	The Tower Model	The Bridge Model	The Net Model
Choices of knowledge in higher education	Liberal knowledge	Specialised knowledge	Applicable knowledge
Socio-political role of higher education	Reproduction of the ruling class based on academic oligarchy	Formation of professional elites based on meritocracy	Economic contribution through knowledge production and professional education
The state’s role in higher education	Spectator	Regulator	Supervisor
Economic link with higher education	Incidental separation	Specific liaisons	Collaborative partnerships

The application of these three models of the relationships highlighted various degree of political and economic interactions with higher education, and the relations’ influence on the shapes of higher education at different times.

For example, the application of the Tower Model helped to clarify the isolation of universities from society. By the middle of the nineteenth century, the transmission of liberal knowledge (then the key mission of universities) was detached from economic activities. The separation between the knowledge taught in universities and the knowledge and skills needed in economic activities did not attract political interest to higher education as a factor in national development in England

and Korea. The limited access to higher education also contributed to the separation of such education from economic activities in both countries.

Higher education at the traditional institutions in both countries was designed to produce political and religious elites. The key distinction between England and Korea was that originally Oxford and Cambridge mainly provided education for the clergy, and *Sungkyunkwan* was for Confucian scholar mandarins. In both cases, the opposition to vocational education kept higher education detached from economic activities.

External pressure on the traditional forms of higher education grew in Britain at the end of the nineteenth century. For example, in England, the growing volume of world trade and increasing industrial competition from France, Germany and the United States called for education in new skills and knowledge. The increasing insistence on the importance of science and technical education encouraged public discussion about the purpose of universities, and supported the creation of new universities in industrial cities like Manchester, Liverpool and Leeds in the 1880s. In Korea, although the national economy was still based on agriculture during the nineteenth century, the industrialisation of European countries and their military expansion in the Asian region decreased the belief in Confucian knowledge. As *Sungkyunkwan* failed to provide national wealth and security against growing foreign intervention, new institutions, (such as *TongByun* School, *WonSan* School, and *EukYoung KongWon*) were created in the 1880s to teach practical knowledge from the West – which was believed to contribute to restoring national power .

Thus, overall, the isolation of higher education from the economy in these traditional societies worked as an insulation which preserved the traditional role – the formation of political and religious elites - of higher education, while the newly

created economic and social need for education was served by the formation of new institutions. The application of the Tower Model was useful to identify the primary role and the position of higher education and the signs of changes in its relationships with the state and the economy at the end of the nineteenth century.

The application of the Bridge Model was useful to show the development of university-industry liaisons. The boundary of higher education as main institution for teaching and research activities was still clear. However, the growth of science and technological education promoted the creation of specific university-industry liaisons to improve the quality of science and technical education and encourage innovation in skills and production rates. The degree of university-industry cooperation varied, depending on the conditions of each institution (i.e. size, location and competitiveness) and the industrial need (i.e. local and national demands) in England and South Korea.

For example, in England, the development of such relations by Cambridge, Oxford, Birmingham and Bristol universities to war-time industry promoted university-industry collaboration after the Second World War, and affected scientific research in universities and science and technology education in the 1960s. The number of technical colleges also grew, and an increased number of graduates entered industry. In Korea, the development of university-industry liaisons was much weaker than in England, as education and research in universities during the 1960s and the 1980s depended largely on knowledge and skills transferred from industrialised countries like Japan and the United States. Nevertheless, university-industry liaisons made slow progress. For example, in 1972, the *Ulsan* Technology University introduced new combined courses, which took place both in university classes and on industrial work floors, were a good model for other universities to follow. The

creation of the Foundation for University-Industry Cooperation by the government in 1974 also supported funding for research, scholarships and conferences.⁶

University-industry liaisons expanded during the 1980s in both countries. In England, Cambridge was a leading university in this respect, attracting a cluster of businesses around the university and creating a science park. In Korea, the Korea Advanced Institute of Science and Technology (KAIST) led the development of joint research activities and technology transfer between universities and industries. As cooperative work between university and industry began to produce positive influences on teaching and research, governmental support for cooperative university-industry liaisons also increased.

As this review shows, the application of the Bridge Model shows clearly the formation of cooperative links between higher education and industry and the growth of science and technology education at the height of manufacturing industry.

More collaborative and diverse forms of university-industry liaisons were developed during the 1990s. The thesis applied the Net Model to examine these new developments, paying attention to the creation of collaborative and inter-dependent relationships between higher education, the state and the economy.

The increased political interest in higher education as relevant to economic policy has affected the direction of higher education since the 1990s. For example, in England, the introduction of new public funding and evaluation mechanisms by the HEFCE and the RAE influenced the development of new management of higher education. Universities like Cambridge, UMIST and Warwick, as described in Chapter Seven, set out new visions, targets for R&D and strategies for securing research funds from the private sector. In Korea, as public funding for higher education institutions is small, the government employed additional research funds

like the BK21 projects to encourage universities to engage in research activities. Many leading universities shifted their attention from teaching to research, although leading academic universities have been the greatest beneficiaries of the BK21.

In summary, the thesis has been able to illustrate and distinguish the different features of higher education in the political and economic context in each period by applying the Tower Model, the Bridge Model and the Net Model. For example, the thesis underlined the disconnection between liberal knowledge in *Sungkyunkwan*, Cambridge and Oxford and economic activities based on craftsmanship in the nineteenth century, and also highlighted how the growing commercial value of new knowledge affected education and research activities in universities in the 1990.

The application of the three models of the relationships also offered a way to understand how similar higher education policies were developed in England and South Korea, over the last twenty years in particular.

At the same time, the application of the models drew attention to how the political interpretation of new patterns of economic activities affected the key roles and the position of higher education in England and South Korea. The thesis also noted that one of the reasons for increased political attention to higher education was the changes in the valuation of knowledge; in particular, increased awareness of its commercial value.

In the next section, therefore, this chapter will discuss how changing valuations of knowledge influenced the development of policy for higher education in England and South Korea.

KNOWLEDGE AND HIGHER EDUCATION

This section will consider changes in the valuation of knowledge, which have acted as one of the powerful forces for changes in higher education.

Knowledge and Economic Value

In Chapter Two, the thesis discussed the old and new forms of knowledge production (Mode 1 and Mode 2 knowledge) and pointed out their different ways of using knowledge. The new forms of knowledge affected research activities in universities significantly, altering views on knowledge production, as the thesis showed in Chapters Seven and Eight.

For example, in ancient English universities, liberal knowledge, which was believed to be appropriate for free men, had more social and political power than practical knowledge. Likewise, Confucian knowledge was valued in Korea.

At the end of the Second World War, the still limited access to higher education and the monopoly of knowledge by academics in universities and professional groups strengthened the privileged role of the university as the only institution which produced valued and powerful knowledge. However, the growth of secondary education and the continued governmental support for higher education during the second half of the twentieth century led to a large expansion of higher education. At the end of the twentieth century, such education had become available to the majority of the population in industrialised countries. Despite the growth of various forms of higher education, university degrees are still important in individual careers and in the rise of professional society.⁷

The growth of mass manufacturing industry and the increased economic competition in international markets from the 1960s supported the development of science and technology education in universities. The increased share of the East Asian countries in the world market also encouraged multinational companies to invest in new technology in the 1980s, in cooperative R&D in universities in particular. This change took place quickly in American universities. For example, for biotechnology products, most academics in molecular biology held positions in spin-off companies by the middle of the 1980s in the USA.⁸ Slaughter points out that funding from industries for R&D in biotechnology in American universities reached 45 per cent of the total in 1991.⁹ Increased private funding has been seen in other academic research areas, including material science, optical science and cognitive science, and now is spreading to Arts and social science studies. These kinds of cooperative research activities were also developed in both English and Korean universities. An increased number of research centres and science parks around universities were created, and raised private research funds for universities. Thus, the development of various forms of R&D and the increased commercial use of new knowledge and technology along with the expansion of higher education affected the valuation of knowledge. Universities are now paying more attention to the commercial value of knowledge.

Education and research in universities now plays a bigger role not only in industrial development but also in individual career development. The changes in social strata in Britain and Korea during the last century show how the improvement of educational opportunities has affected social mobility.

For example, in Britain, early industrialisation from the eighteenth century improved the economic conditions of all classes. However, the differentiated

distribution of wealth created larger economic gaps between the classes than before between 1880 and 1914.¹⁰ In addition, the poor performance of trade and industry between 1873 and 1896 hit the working class harder than the rich.¹¹ Nevertheless, the growth of the middle classes and the national wealth supported the expansion of the education system and hence the growth of professionalism at work.

In traditional Korean society, there were four social strata: *Yangban* (scholars), *Choongin* (administrators and technicians), *Yangin* (farmers, craftsmen and merchants) and *Chunin* (slaves).¹² Each membership of each social stratum was defined by the inherited name and wealth of each family, and the inheritance of one's position was bounded by the social custom rather than legal definition, except for the slaves.¹³ However, as this traditional social structure collapsed during Japanese colonial rule (1910-1945), education became the main mean which decided the individual's social and economic position in a rapidly changing society.

Thus higher education in both countries has played an increasing role in individual social mobility, which has influenced the development of specialised and professional education programmes; this trend has strengthened along with the development of the new idea of lifelong education in recent years.

Knowledge and the State

In both countries, the modern state became more sensitive to the value of the knowledge that higher education produced, understanding the possible contribution of higher education to national development. The governments began to intervene in the choice of knowledge in higher education. This began as a subtle encouragement of science and technology education, but now the governments intervene in the management of higher education to promote the production of the most advanced

knowledge. As Chapter Seven described, the English government introduced competition into the evaluation of teaching and research activities, and the New Labour government in particular presented support for education as the best economic policy. This government has promoted the ability of higher education institutions to adapt to new economic conditions, and implemented new surveillance systems to manage the ever-growing size of higher education efficiently and effectively. Chapter Eight also illustrated the Korean government's new policies, which encouraged competition between institutions to promote a diversified development of education and research activities in universities. In these cases, the thesis highlighted the political influences on the changing valuation of knowledge.

The thesis also tried to make sense of the relation between the different characteristics of the state and the distinctive features of higher education policies. The development of the commercial and capitalist economy affected the transformation of societies and the forms of political authority (the state).¹⁴ Therefore, the next section examines the different characteristics of the state (the Confucian state, the Liberal state, the Welfare state and the Neo-liberal state) and its changing emphasis on particular kinds of knowledge in higher education.

The Confucian State

The *Chosun* Dynasty developed a centralised governing system and had a strong national identity, which was embedded in the Confucian ideas of the state. For example, the direct translation of “state” in Korean is *국가* [kuk ka], which literally means “country-family”, implying a strong sense of belonging to the state. The government in Confucianism is responsible for the wellbeing of the people: the political peace, economic prosperity and cultural richness of the nation. Yao points out that “the vitality of Confucianism can be generated through learning (education),

and renewed in the practices of what has been learnt.”¹⁵ Therefore, the government in Confucian thinking focuses on enlightening people by education. The Korean state’s interest in education was higher than that of the traditional British state.

Although Confucian ideas and knowledge were diluted in the process of rebuilding South Korea as a modern state, the thesis showed the Confucian influences on the rise of the politico-economic strategies of the Developmental State during the industrialisation phase in South Korea. For example, the government played a key role in organising the national development plan, and led the industrial development. Interestingly, the government invested in education more than in any other public services from the very early period of national development. The traditional idea of the state-citizen relationship allowed the development of the centralised governing systems, which was already embedded in Confucian ideas of the state, and the state invested in education as a way of enlightening people by training them in new knowledge and skills in order to achieve rapid economic development.

Thus state-led education development and state intervention in the direction of higher education in South Korea were accepted by the public in the national developmental period with relatively little resistance.

The Liberal State

From the middle of the seventeenth century, British Enlightenment thinkers, including John Locke¹⁶, Adam Smith¹⁷ and J. S. Mill,¹⁸ developed the concept of the liberal state, embracing the development of representative political democracy,¹⁹ and the ‘invisible hand’ of the market.²⁰

In England, economic liberalism - “laissez-faire” capitalism - was narrowly defined as freedom from regulation in production and trade.²¹ Mill supported the laissez-faire principle in economies, but with exceptions: education, the protection of

children and animals, contracts in perpetuity, the management of joint-stock companies, working hours, the Poor Laws, and colonisation.²² Despite the weak links between the development of liberal ideas (concerning individual freedom and right) and liberal economic practices, the transition to laissez-faire capitalism went ahead in nineteenth century England. In such a perspective, the economy has little or no government regulation and largely depends on market forces, that is, on individual choices and hence competition.

The flourishing of liberal ideas in the nineteenth century, especially the support for the free market can be understood in relation to the vibrant development of industries and the uneven improvement of elementary education.

However, there were signs of growing social concerns for women and children, and for health and safety, in a number of parliamentary Acts in the nineteenth century. The gradual growth of social concern and the rise of new political parties helped the development of a powerful new idea, the Welfare State, discussed for about forty years and finally implemented by the Labour Government after the Second World War. This shift included the British government's increased intervention in the development of 'state' education.

The next section discusses the characteristics of the Welfare State in Britain and its influences on higher education.

The Welfare State

In England, as Chapter Three described, the state's involvement in the development of the education system came much later than in many other European countries. This was partly because the established Church was concerned about the state's involvement in education, being anxious about secularism in school

education.²³ It was also because local communities and guilds created schools for their members and offered care for the poor and the sick before the nineteenth century.²⁴

A network of services for social security, health, welfare, education and housing emerged slowly in the period 1900-1948, despite reluctance to accept the role of the government in promoting social welfare.²⁵ Both the accumulated national wealth created by early industrialisation and war-time experiences of organising large-scale public caring helped to develop administrative skills for delivering national support of social security, health, education and housing. The development of welfare policies in England influenced ideas about the appropriate balance between the state, family and community in the provision of support for social wellbeing.²⁶

The role of the modern state was re-defined in the profound social and economic transformation of twentieth-century England. The government gradually took over the primary responsibility for providing services in health, education and housing. In education, for example, the government began to play a key role in the development of national policies.²⁷ The Fisher Education Act in 1918 raised the school leaving age to 14, and the 1944 Act promoted the idea of secondary education for all.²⁸ The development of the Welfare State from the 1940s aimed at “a legal entitlement for citizens to access to universal services in health, education and housing”.²⁹ Therefore, whereas in England, in 1860, there was no state support for education except educational grants from Parliament to religious bodies, by 1970 free and compulsory ten-year education and secondary and higher education with maintenance grants were available.³⁰ In higher education, the government led the creation of new universities and technical colleges in the 1960s. However, the growth of the population and the pressure to improve the quality of education put education

policies under financial strain,³¹ which encouraged the development of neo-liberal policies from the 1980s.³²

Meanwhile, during the development period in South Korea, the government-led development of education (including higher education) improved the overall standard of education. However, welfare policies like those of the British system, covering health, housing, employment and education, were not developed by the 1980s. In the 1990s, before the mature development of welfare state systems, British-American neo-liberal ideas, along with the growing economic globalisation, began to influence the development of education policies. Therefore higher education in South Korea was less influenced by the welfare state concept than in Britain, although the welfare state policies raised political attention to the need for more equal access to higher education and to the quality of higher education.

However, the rapid growth of the world market and increased international competition affected the governments' attitude to higher education, and encouraged the governments both in England and South Korea to accept neo-liberal ideas.

The Neo-liberal State

The world recession, which began with the oil crisis in 1973, led the industrialised countries to reconsider the condition of their national economies. Many western countries were encouraged to move away from economic nationalism, as they realised new ways of creating wealth by using new technology, cheaper transportation and low-cost labour.³³

The British government reviewed the accepted ideas about the Welfare State and welfare policies.³⁴ The primary concern of the government in the Welfare State, which was the development of policies to protect workers in terms of social mobility and the distribution of wealth, shifted to a concern for the creation of conditions for a

free market by the state.³⁵ The British and United States governments moved fast to adapt to new economic conditions in the world market. These governments restricted political intervention in the market and encouraged the privatisation of national industry in the public sector.³⁶ This new political tactic to cope with a particular economic situation, the new trend of the economic policies of Thatcher and Reagan during the 1980s, became known as 'neo-liberalism'. According to neo-liberal ideas, "To compete successfully in the new global market, nations have to cut back, reducing social welfare and entitlement programmes, freeing capital and corporations from taxation and regulation, allowing them to operate unfettered." ³⁷

In neo-liberal ideas, therefore, education itself is understood as a product, and the quality of education can be improved by a competitive distribution of public education through competition among schools, teachers and education programmes.³⁸ In this new setting for economic policies, the control of knowledge was seen as an essential force for the creation of wealth, and the governments promoted a 'knowledge war' through education. ³⁹

The introduction of neo-liberalism into the higher education sector in England meant reducing public funding for universities in order to increase the efficient management of institutions, while in Korea it initiated large-scale reform policies to improve the quality of teaching and research to the equivalent of international standards.

The dependency of the state on knowledge produced in higher education grew as international competition in the international market increased. The fall of communism in Eastern Europe brought more severe economic competition, along with increased economic globalisation. In the 1990s, this amplified international pressure on the state to seek ways of supporting the research and development in

universities. Both governments implemented evaluation and competition systems to support efficient research activities. The RAE reviews in English universities, and, for Korean universities, special research funds, the BK21 projects, all aimed to support research activities in universities. The introduction of entrepreneurial management in higher education required the development of new public management skills in higher education in both countries.

In fact, higher education policies in the 1980s and the 1990s were strongly led by the new political attitude towards higher education, which advocated “higher education for national economic growth”.⁴⁰ In addition, the governments’ priority for the efficient management of higher education led them to set out performance indicators, along with employing a new vocabulary of terms such as “goals”, “target”, “tasks” and “incentives”.⁴¹ This increased political interest in the management of higher education led to the rise of the concept of the Evaluative State.⁴² According to Neave, one of the key ideas in the Evaluative State is the concept of “contractualisation” between university, state and society.⁴³ The contract between the state and each university could be subject to changes, in order to enforce change in a way which reacts to market needs. However, Dill points out, the cost of the evaluation process is high, and the evaluative body itself could actually contribute to inefficiency.⁴⁴ Therefore the concept of evaluation, which began as a management strategy to promote the efficiency of the growing higher education system in Europe, now opens up the further possibility of re-interpretation by considering the degree of evaluation, and by whom and with what priority it is to be done.

Nevertheless, the varied characteristics of these two countries in different periods were important in shaping the triad of relations with which the thesis has been concerned.

Theories

Convergence theories and developmental state theories were both useful in structuring the initial argument of my study. Convergence theories allowed me to understand how the increasing international competition, which was raised by the growing global economic activities, has pressured governments to act in certain ways to utilise higher education. Developmental state theories were also useful in illustrating the critical role of the government and for understanding the direction and the nature of new higher education policies.

For example, convergence theories highlighted how competitive industrial development affected higher education. As Chapter Three illustrated, industrial competition among European countries at the end of the nineteenth century pressured English thinkers and entrepreneurs to support the provision of science education in universities. Both Chapters Four and Six investigated how Korean governments and educationists tried to establish a modern education system, believing a new form of education to be the only way to save the future of the country faced by the aggressive invasion of the strong military and economic power of countries, which industrialised earlier. The advance of industry has made an even bigger impact on higher education in the last two decades, as higher education has become the main provider of cutting-edge knowledge and an educated workforce. Chapters Seven and Eight discussed how in each country the political strategy for national economic growth under the pressure of the economic globalisation influenced the direction of higher education.

Nevertheless, the convergence theories argued by Floud and Halsey, Neave, and Bricall all focused on the advancement of industrialisation and its influences on education. They tend to emphasise the role of higher education in terms of human capital, the knowledge economy and economic globalisation. Excessive stress on the

economic responsibility of higher education can lead to overlooking the unique activities of the transmission and production of knowledge in higher education. Therefore the application of convergence theories does not offer a full picture of changes in higher education.

Developmental state theories also offered an interesting interpretation of the growth of state-led higher education systems in some East Asian countries and the growing roles of the government in other countries. For example, Chapter Six discussed these themes to illustrate the formation of the government-led national strategy which supported the expansion of higher education and economic growth in South Korea. Although the Korean government has pursued a democratic process in forming educational policies and promoting competition among institutions since the 1995 Reform, as discussed in Chapter Eight, the Korean state is still developmental in nature. Interestingly, while the Korean government tried to reduce governmental intervention, the English government increased its roles in leading higher education to support the national economy, as examined in Chapter Seven. Nonetheless, the tactics which the English government employed are hardly to be characterised as developmental. The increasing roles of the government and the direction of new policies can be understood as a development of neo-liberal policies in higher education. The strong liberal tradition of the English government and the development of welfare policies rather than concern for strong national development strategies still affect the direction of higher education policies. Therefore, a comparative analysis based on developmental state theories limits the discussion about higher education which is needed.

Models

In the beginning of the research, the theoretical framing in the context of convergence approaches and developmental state approaches allowed me to understand current issues in higher education, such as the massive expansion of higher education, the growth of research activities in universities and new ways of governance of higher education. However, the attention to the external relations of higher education led me to overlook the powerful nature of the university itself.

The application of the three models of the relationships between higher education, the state and the economy to the comparative analysis of England and South Korea permitted me to have a different standpoint in investigating the changing shapes of higher education. For example, it allowed me to think about the central activities of higher education institutions, which have survived for many centuries, despite the continuous political and economic influences on higher education.

Focusing on the key activities of higher education within the unique academic tradition, for instance the production of knowledge, I was able to understand why higher education has attracted increasing social and political attention. For example, the analysis of the changing valuation of knowledge over time allowed me to overview the rise of the social and economic power of knowledge along with the growing commercialisation of advanced scientific knowledge and technology. Clearly, when higher education was accessible to only a few members of society, as described in Chapters Three and Four, the valuation of the knowledge which was produced in the academic world was not a matter for national attention. However, as knowledge became the source of competitive power in a more advanced economy and as leading to the betterment of individual life, as shown in Chapters Seven and Eight, the

political and economic influences on the choice of knowledge in higher education have become substantial.

The models also permitted me to observe the changing position of higher education in each society over time. As higher education started to build relationships with the society, higher education began to move closer to the public and to the industry. For example, in the traditional society, the physical location of higher education institutions was far from where most ordinary people lived. As both Chapters Three and Four showed, this distance began to shift under the pressures from industrial competition in England and from foreign political intervention in Korea. Whereas English universities managed to maintain their academic tradition and the academic boundary, in Korea the *Sungkyunkwan* was closed by the colonial government. The Japanese colonial government acted almost as a 'developmental state', with specific governing strategy for Korea as a sub-economy for Japan. This strategy formed a close link between higher education and the state.

After the end of the Second World War, the position of higher education was much closer to the public than decades earlier, and higher education's relation with industry became cooperative and constructive. Especially in England, the development of wartime industry had a positive influence on university-industry liaisons. In Korea, once the academic tradition collapsed, the transformation of higher education was accelerated. When the Korean government launched a national economic development plan in the 1960s, the government utilised education institutions to support industrial development effectively. In both societies, therefore, higher education institutions were re-positioned much closer to the government and to industry.

In the twenty-first century, there is no visible boundary around higher education. Especially in terms of knowledge production and knowledge transmission, the specific physical space of a university is not important. Universities are building networks with business, industry and other research centres, nationally and internationally. As Chapters Seven and Eight described, each institution is working like a business in order to build a strong, efficient and competitive academic community. The three models were useful to clarify these changing positions of higher education in England and South Korea.

For that reason, despite their limits and weakness, the models could be applied to the analysis of other countries. For example, it would be valuable to use them for analysing the significant expansion of higher education along with the fast economic growth in China during the last ten years.

The Korean Literature

In the past, Korean studies of higher education reflected the political control of higher education. They were mainly descriptive policy reports about the national provision. There has been a noticeable increase in the volume of research on Korean higher education during the last fifteen years. The increased effort has raised higher education study to a different level.

However, there is still a strong political discourse in the study of higher education. For example, as the specialisation of higher education institutions and the enhancement of research activities in elite universities have been important issues in the political agenda, the study of higher education focused on these issues.

Especially, the Education Reform in 1995 and the experience of the Asian economic crisis from 1997 encouraged the discussion of proposals for appropriate

roles of higher education in the twenty-first century reviewing other countries' cases. For example, the titles of some of the leading books and reports which were published in last the years are *Education and IMF Re-structuring: Lessons from International Cases*,⁴⁵ *A Comparative Study of Graduate School Systems for the Enhancement of Higher Education*,⁴⁶ *A Direction and Tasks for Korean Educational Policy in a Knowledge-based Society*,⁴⁷ *A Re-consideration of Higher Education for the Building of a Knowledge-strong Country*,⁴⁸ and *Innovation in Universities and Competitive Power*.⁴⁹ The common concerns of these publications are diagnoses of the condition of Korean higher education, lessons from the economically advanced countries, United States, UK and Japan in particular, and strategic planning for the improvement of Korean higher education. In fact, many of them were published by the KEDI, specifically for supporting official policy development. It can be understood since the recent contemporary development of Korean higher education had been based on foreign ideas academics would look for ideas from outside. However, it is also true that the growth of higher education was from very different roots, intertwining with the unique cultural and academic contexts of Korea. Therefore, it is time to turn our academic attention to the very heart of our own academic structure in its social contexts.

My study therefore can turn academic attention to a new perspective for thinking about key ideas of higher education, and may encourage academic discussion beyond the political and economic discourses of higher education in Korea, and hence contribute to the improvement of theoretical approaches in higher education studies.

At the end of the study, however, the thesis notes that, despite the intense changes in higher education, the key roles of higher education (teaching and research) have been strengthened even further due to the emergence of the knowledge society.

In fact, in both countries, higher education institutions are now playing much more critical roles than before, and taking wider responsibilities for society. The analysis of higher education over the long term in the two countries has helped me to understand that the waves of change surrounding higher education may be expected to continue for as long as our search for new knowledge goes on.

It may be worth reminding ourselves of the old wisdom of Confucius, which is recorded in *Great Learning*:

Things being investigated, knowledge became complete.
Their knowledge being complete, their thoughts were sincere.
Their thoughts being sincere, their hearts were then rectified.
Their hearts being rectified, their persons were cultivated.
Their persons being cultivated, their families were regulated.
Their families being regulated, their States were rightly governed.
Their States being rightly governed, the entire world was at peace.

This, of course, is not quite what is being suggested by globalisation theory. In fact, one of the problems with the current application of globalisation theory is that it is merely stressing ‘social cohesion’. Perhaps Confucius said it rather better.

ENDNOTES FOR CHAPTER NINE

¹ Held, D., *et al*, (2000), *Global Transformations – Politics, Economics and Culture*, Polity: Cambridge, pp. 39-41.

² Slaughter, S. and Leslie, L. (1997), *Academic Capitalism – Politics, Policies and the Entrepreneurial University*, The John Hopkins University Press: Baltimore and London, p. 28.

³ Slaughter, S. and Leslie, L., (1997), *ibid.*, pp. 32-33.

⁴ Slaughter, S. and Leslie, L., (1997), *ibid.*, p. 37.

⁵ OECD, (1998), *Korea, Review of National Policies for Education*, OECD: Paris.

⁶ Lee, Mookeun, *et al.*, (1990), *산학 협동교육의 활성화: 문제와 대책*, [Activation of Industry-University Cooperation Education: Problems and Tasks], The Korean Committee for Research in Higher Education: Seoul, p. 29.

⁷ Perkin describes today as a professional society which refers to one structured around career hierarchies rather than classes, one in which people find their place according to trained expertise and the service they provide rather than the possession or lack of inherited wealth acquired capital. Perkin, H. (2002), *The Rise of Professional Society: England since 1880*, 2nd Edition, Routledge: London and New York, p. 359.

⁸ Slaughter, S. and Leslie, L., (1997), *ibid.*, p. 6.

⁹ *Ibid.*, p. 7.

¹⁰ Perkin, H. (2002), *ibid.*, pp. 27-28.

¹¹ *Ibid.*, pp. 36-37.

¹² Park, Eunsuk, (2000), *갑신 정변 참여층의 신분과 정변 참여 동기*, [Social Status and Motivations of Participants in the Kapsin Coup], *International Journal of Korean History*, Vol. 1. p. 154.

¹³ *Ibid.*

¹⁴ Morrow, J. (1998), *History of Political Thought – A Thematic Introduction*, Palgrave: Basingstoke, New York, pp. 2-3.

¹⁵ The argument of Confucianism as the state orthodoxy is problematic. Yao, X., (2000), *An Introduction to Confucianism*, Cambridge University Press: Cambridge, p. 30.

¹⁶ For example, Locke argues that as the natural liberty of men is endowed by God, and hence “the legitimacy of government depends on its willingness to give effective legal form to the implications of the law of nature and to avoid acting in ways that threaten the ‘life, liberty and estates’ of those who are subject to it”. Morrow, J.

(1989), *ibid.*, pp. 77-80, and see also Jordan, B., (1985), *The State: Authority and Autonomy*, Basil Blackwell: Oxford and New York, pp. 30-40.

¹⁷ Jordan, B., (1985), *op. cit.*, pp. 46-57.

¹⁸ The account about the relationship between individual freedom and politics was advanced by John Stuart Mill. In his essay, *On Liberty* (1859), Mill argues that, "The only purpose for which power can be rightfully exercised over any member of a civilised community, against his will is, to prevent harm to others." Jordan, B., (1985), *op. cit.*, pp. 72-79.

¹⁹ Morrow, J. (1989), *ibid.*, p. 79.

²⁰ Jordan, B., (1985), *op. cit.*, pp. 48-49.

²¹ Polanyi, K. (2001), 2nd edition, *The Great Transformation – the Political and Economic Origins of Our Time*, Beacon Press: Boston, p. 142.

²² Jordan, B. (1985), *The State – Authority and Autonomy*, Basil Blackwell: Oxford and New York, p. 76

²³ Green, A. (1990), *Education and State Formation – The Rise of Education Systems in England, France and the USA*, Macmillan Press Ltd.: London, p. 210.

²⁴ Sleeman, J.F. (1973), *The Welfare State: Its Aims, Benefits and Costs*, George Allen & Unwin Ltd: London, p. 9.

²⁵ *Ibid.*, p. 23

²⁶ Rodger, J. (2000), *From a Welfare State to a Welfare Society: The Changing Context of Social Policy in a Postmodern Era*, St. Martin's Press INC.: New York, p. 18.

²⁷ Sleeman, J.F. (1973), *ibid.*, pp 39-41.

²⁸ *Ibid.*, pp 29 and 65.

²⁹ Rodger, J. (2000), *op. cit.*, p. 8.

³⁰ Gough, I., (1979), *The Political Economy of the Welfare State*, the Macmillan Press Ltd.: London and Basingstoke, p. 2.

³¹ Sleeman, J.F. (1973), *ibid.*, pp. 65-67.

³² Rodger, J. (2000), *op. cit.*, pp. 95-96.

³³ Halsey, A.H. *et al.* (1997), *Education – Culture, Economy, Society*, Oxford University Press: Oxford and New York, p. 5.

³⁴ Rodger, J. (2000), *ibid.*, p. 57.

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- ³⁵ Brown, P. and Lauder, H. (1997), Education, Globalisation, and Economic Development, in Halsey, A.H. *et al.*, *Education – Culture, Economy, Society*, Oxford University Press: Oxford and New York, p. 173.
- ³⁶ Ro, Sangwoo, (1999), Market Logic of Neo-liberalism and Democratic Educational Logic, *한국교육연구*, [Korean Educational Research], Vol.5, No.2, p. 4.
- ³⁷ Slaughter, S. and Leslie, L. (1997), *ibid.*, p. 34.
- ³⁸ Ro, Sangwoo, (1999), *ibid.*, pp. 4-5.
- ³⁹ Brown, P. and Lauder, H. (1997), *ibid.*, p. 174.
- ⁴⁰ Bleiklie, I. (1998), Justifying the Evaluative State: New Public Management Ideals in Higher Education in *European Journal of Education*, Vol. 33, No.3, p. 307.
- ⁴¹ *Ibid.*
- ⁴² *Ibid.*
- ⁴³ Neave, G. (1998), the Evaluative State Reconsidered, in *European Journal of Education*, Vol. 33, No. 3, p. 276.
- ⁴⁴ Dill, D. (1998), Evaluating the ‘Evaluative State’: Implication for Research in Higher Education, in *European Journal of Education*, Vol. 33, No. 3, p. 363.
- ⁴⁵ Yoon, Jungil, *et al.*, (eds.), (1998), *IMF 구조조정과 교육- 세계 사례와 교훈*, [Education and IMF Re-structuring: Lessons from International Cases]. Centre for Educational Study, Seoul National University: Seoul.
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